TECHNOLOGY DEPT.

NOVEMBER, 1950

Telephone Engineer and Management

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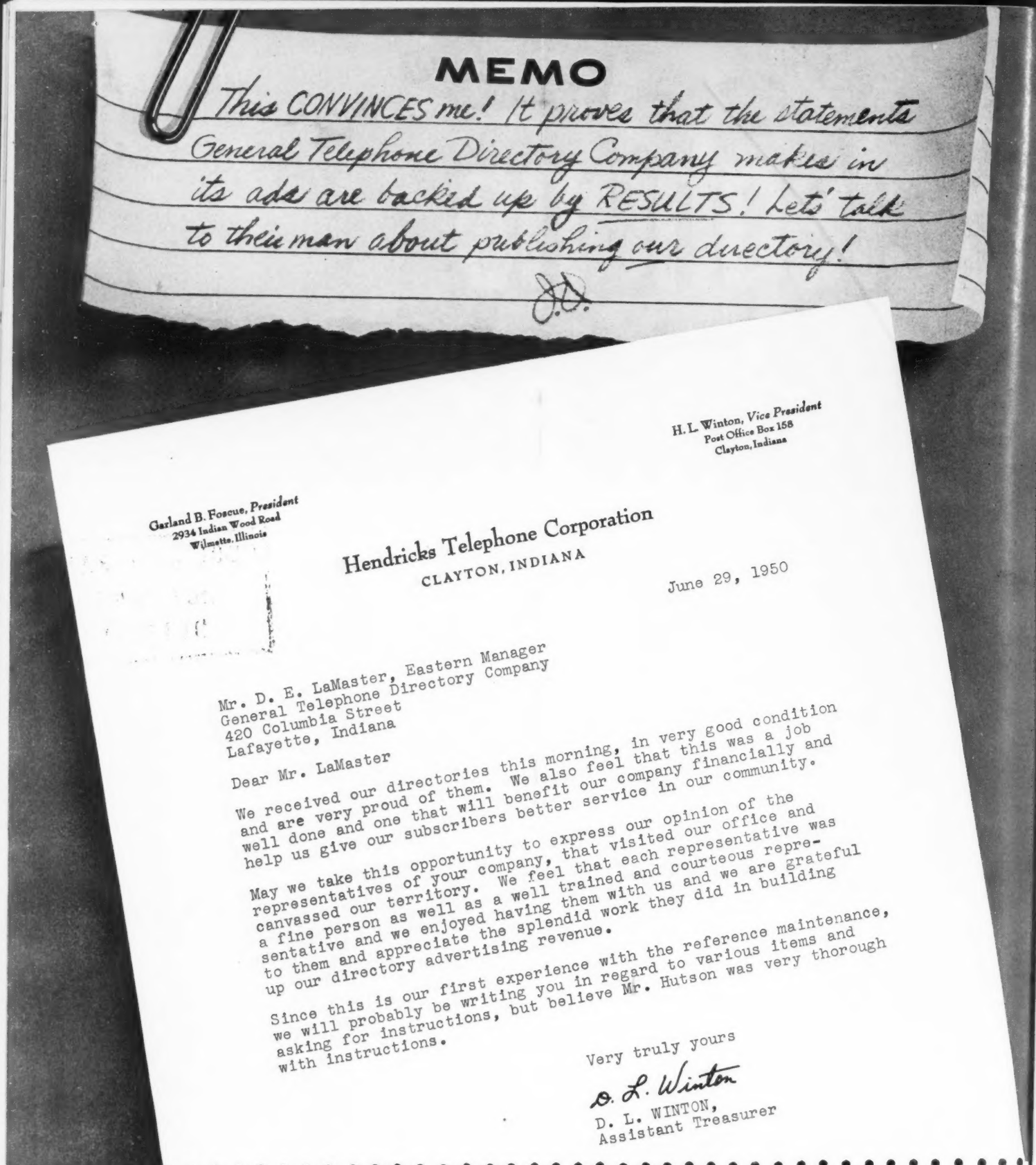
DETROIT

THE NATIONAL TELEPHONE MAGAZINE

Features In This Issue—

- Rebuilding The Rural Outside Plant
- Small Company Talk
- Telephone Communication In A New Era


MEMO
This CONVINCES me! It proves that the statements General Telephone Directory Company makes in its ads are backed up by RESULTS! Let's talk to their man about publishing our directory!
J.D.
H. L. Winton, Vice President
Post Office Box 158
Clayton, Indiana
Garland B. Foscue, President
2934 Indian Wood Road
Wilmette, Illinois
Hendricks Telephone Corporation
CLAYTON, INDIANA
June 29, 1950
Mr. D. E. LaMaster, Eastern Manager
General Telephone Directory Company
420 Columbia Street
Lafayette, Indiana
Dear Mr. LaMaster
We received our directories this morning, in very good condition and are very proud of them. We also feel that this was a job well done and one that will benefit our company financially and help us give our subscribers better service in our community.
May we take this opportunity to express our opinion of the representatives of your company, that visited our office and canvassed our territory. We feel that each representative was a fine person as well as a well trained and courteous representative and we enjoyed having them with us and we are grateful to them and appreciate the splendid work they did in building up our directory advertising revenue.
Since this is our first experience with the reference maintenance, we will probably be writing you in regard to various items and asking for instructions, but believe Mr. Hutson was very thorough with instructions.
Very truly yours
D. L. Winton
D. L. WINTON,
Assistant Treasurer

GENERAL TELEPHONE DIRECTORY COMPANY

Nation-wide Publishers of Telephone Directories

TELEPHONE COLLECT OR WRITE TO ONE OF THE OFFICES LISTED BELOW FOR A REPRESENTATIVE TO CONTACT YOU.

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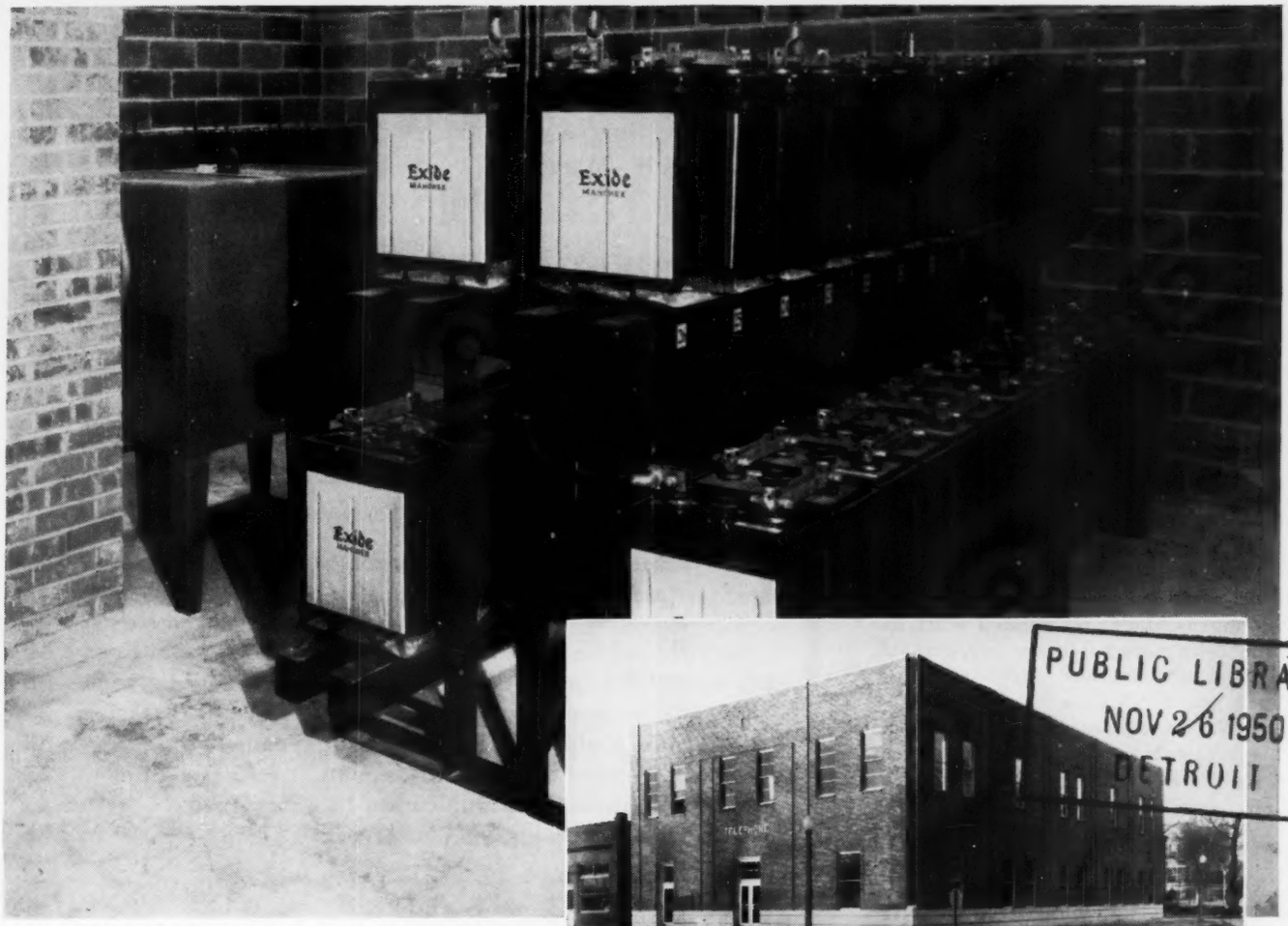
Washington Building, Madison, Wisconsin • Telephone 6-7823

WESTERN OFFICES

604 Pine Avenue, Long Beach 12, California • Telephone 6-7221

1220½ Texas Avenue, Lubbock, Texas • Telephone 2-6330

Peyton Building, Spokane, Washington • Telephone Main 8644



52-cell FME-17 Exide-Manchex Battery in Hastings Exchange.

New Hastings Exchange, second largest in Lincoln Telephone & Telegraph Company's 22-county area in southeastern Nebraska.

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DETROIT

In more and more exchanges, the battery choice is

EXIDE-MANCHEX

One of the latest installations of Exide-Manchex Telephone Batteries is in the new Hastings, Nebraska, Exchange, an important toll center of The Lincoln Telephone & Telegraph Company.

The Hastings Exchange serves 20 tributary exchanges and handles about 17,400 long distance and 980,000 local calls per month. New Central Office equipment will have a capacity of 5,060 local and 85 toll lines. The new long distance switchboard will have 19 positions—15 for toll, 4 for special services.

Dependable battery power for the enlarged facilities is assured by the Exide-Manchex, which is designed to meet all stationary battery requirements—common battery, emergency reserve, signaling, PBX and other applications. Its use is assurance of dependability, long battery life, low cost maintenance.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

You get all these in the EXIDE-MANCHEX

- The *exclusive*, long-life manchester positive plate.
- Slotted plastic separators, impervious to chemical and electrical reaction.
- Plastic spacers for plate alignment.
- Latest development in molded glass jars.
- Heavy terminal posts with copper inserts for extra conductivity.

"Exide" and "Manchex"
Reg. Trade-marks U.S.Pat. Off.

1888 . . . DEPENDABLE BATTERIES FOR 62 YEARS . . . 1950

Across The Editor's Desk

Our greeting to MR. S. A. COLLINS as the new secretary of USITA which appeared in this column of our last issue backfired on us. Mr. Collins has accepted an overseas appointment with the government and has tendered his resignation to the board of directors of the United States Independent Telephone Association. His family will accompany him on his mission which has not been made public because, perhaps, of security reasons.

• • •

We were pleased that so many of you telephone people reproduced our Special Editorial that appeared in our October 20 issue of NEWSLETTER. From that time until just prior the Nov. 7 election we were kept busy shipping reprints and giving our permission to reproduce the item in newspapers, magazines, a radio station, etc. As you will notice from the footnote on page 25 we allow reproduction of our Editorials at no charge and only ask that a copy of the reproduction be sent to us for our files.

• • •

We have had several inquiries asking if the series "Rebuilding the Rural Outside Plant", concluding in the December issue, would be available in reprint form. This 13-part series by JOHN S. REED has been a very popular feature for our readers. If there is sufficient request for a reprinting of the entire series we will publish the articles in one book. Please write if you are interested.

• • •

The 1950 state telephone conventions will end with the meeting of the Missouri Telephone Association convention in Kansas City on November 20 and 21. The many meetings of the state telephone conventions this year, coupled with the two meetings of USITA, have been most informative to our industry.

• • •

The industry mourns the passing of R. B. Fegan of the Junction City (Kans.) Telephone Co., who had been ill for an extended period. He entered the telephone business in 1896.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

NOVEMBER, 1950 **VOL. 54, NUMBER 11**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
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FRONT COVER

Photograph taken during District Meeting of the Missouri Telephone Association at Macon, Mo.

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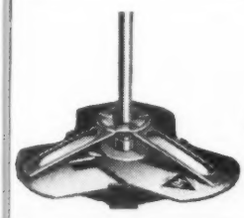
The Most Important Guy in Line Construction

● L-M makes a wide variety of materials for telephone line construction. But none are more important than L-M guying equipment, for if the guy goes, the line goes.

So L-M guy hooks, attachments, clamps, and rods are made of high quality materials, heavily hot-dip galvanized under precisely controlled conditions.

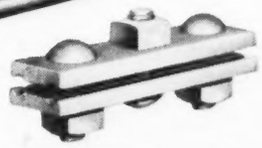
L-M, one of the great names in electrical equipment research, is also one of the great names in line construction materials. L-M materials are recognized for their strength and dependable high quality. They are available for prompt shipment through 77 L-M sales offices and warehouses throughout the country.



3-Way Expanding Steel Guy Anchor

Steel Single Strand Eye Anchor Rod

Steel Guy Wire Protector



Guy Clamp with Torkol-treated Nuts

Angle Single Strand Eye Bolt

Galvanized Steel Lift Plate

●For complete information on L-M guying equipment and other L-M line construction materials, ask your Kellogg man. Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

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Line Construction Materials

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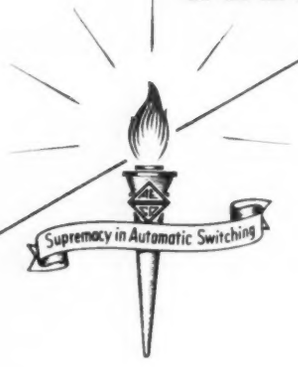
"KNOW-HOW" Serves the World



through the
International
AUTOMATIC ELECTRIC
Group

When you call upon any of the offices of International Automatic Electric Corporation, or its agents anywhere in the world, you command the "know-how" of Automatic Electric Company, world pioneer in automatic telephony. Hundreds of telephone companies and operating administrations, throughout the world, have used its services to their advantage.

Automatic Electric "know-how," developed through almost sixty years, and made available to the Company's manufacturing affiliates in Canada, Belgium and Italy, has played an important part in the growing use of Strowger Automatic equipment throughout the world. Year by year, this "know-how" continues to grow, as new problems are presented and solved.

Wherever you are, whatever your requirements may be, you are invited to use Automatic Electric "know-how." It is available to you through a nearby representative of the International Automatic Electric Group.

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Selling Companies and Agents Throughout the World

It's Unanimous! We All Go For Gould Planté!

For dependable, trouble-free full-float service, nothing can equal a Gould Planté! *All* of each positive plate in a Planté is pure lead—there are *no* antimonial impurities. Their voltage requirements and capacity remain constant throughout their amazingly long, low-cost life. In fact, Planté batteries remain in active full-float service for 20 years, 30 years and even longer! Once you know the facts, you, too, will go for

GOULD PLANTÉ
The Aristocrat of Stationary Batteries!

MAINTENANCE:
"They almost never need service and I add water only half as often."

ACCOUNTING:
"Per annum cost is lowest. We can amortize them over many more years."

PURCHASING:
"You seldom replace a Planté. You just don't live that long!"

ENGINEERING:
"They discharge at high rate longer... float at same voltage all their life."

GOULD
STORAGE BATTERIES
GOULD-NATIONAL BATTERIES, INC.*
TRENTON 7, NEW JERSEY
Always Use Gould-National Automobile and Truck Batteries
*Formerly Gould Storage Battery Corporation

Complete OUTSIDE ENGINEERING CONSTRUCTION and MAINTENANCE

Any Place in Continental America

Whatever your problem . . . where-ever it may be . . . we can help you plan, erect, repair or maintain your outside telephone plant.

Years of on-the-job experience working with independent telephone companies from coast-to-coast, the finest and most modern equipment, *PLUS* the know-how of trained and experienced crews assure you efficient, economical, long-lasting service. Proper engineering and construction methods can have a far reaching effect on your plant investment and it's operating efficiency.

From Main Distributing Frame to Phone Subscriber

Regardless of your location or the size of the project—be it new construction, repair, maintenance, or all three—we can do the job—above the ground or under the ground. Our highly trained personnel working in numerous crews in all sections of the nation are equipped with modern, top-quality construction and maintenance tools. We guarantee to do the job so it will last longer, cost less and operate more efficiently. Call us today!

ON THE JOB 24-HOURS EVERY DAY IN THE YEAR

Advice on Your Over-All Construction Planning

Our Supply Division can supply you with the best materials . . . at prices consistent with top quality. We give you a complete service from the start and follow through until the job is completed, approved and accepted. All the work is done to A.T.&T. specifications unless otherwise requested. We have the skill and experience to do the job right. Let us give you time and cost estimates on construction, maintenance or repair jobs. No obligation. We're as near to you as your telephone. Call us now!

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ENGINEERING • CONSTRUCTION • MAINTENANCE

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NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

November 15,1950

Dear Sir:

Imposition of controls on more stragetic metals & materials, but in all probability with delineation of special treatment of essential public services like telephone & telegraph systems to insure maintenance of adequate communications, will undoubtedly be speeded up directly after election. So far, limitation & controls have not been spelled out in any definitive way for specialized fields of service, by National Production Authority (NPA), although official sources at that agency Nov. 3, indicated to TELECOMMUNICATIONS that this phase of NPA's blueprinting of allocation of critical metals & materials was next order of business.

One index of latter trend was issuance Nov. 2 by NPA of amendment to its original declaration of authority to Department of Defense under basic priorities system. This amendment was described by NPA as designed to provide method for meeting requirements of programs intimately connected with national defense but where procurement is not made directly by Defense Department. Under this amendment, Department of Defense may now assign ratings for authorized programs of such other U. S. government agencies as the NPA may designate by special direction to Defense Department or redelegate this authority to assign ratings to such specially designated government agencies.

That this might be first move toward special treatment of essential services was also indicated in announcement, Nov. 6, by Secretary of Defense Marshall & General Services Administrator (GSA) Larson that agreement had been reached by two agencies on cooperative procedure for procurement and supply problems in regard to power, gas & water utilities. Similar agreement is in the making for telephone and telegraph services, GSA said.

* * *

Zenith Radio Corp., Chicago, Ill., postponed its long-delayed "Phonevision" test from Nov. 1 to Dec. 1. Eugene F. McDonald, Jr., Zenith pres. said he had been unable to obtain enough first class films from Hollywood producers "to insure a fair test."

Phonevision is system of bringing first-run movies, plays & sports events to television viewers over hookup using home telephones. Viewers will pay $1 for each movie they choose to see. Test will be made in 300 Chicago area homes.

A loan allocation of $168,000 has been made by Rural Electrification Administration to Marquette & Adams County Tel. Co., Oxford, Wisc. Company will construct 12 miles of new line, rebuild 140 miles of existing facilities, & convert to dial operation. It will then serve 622 subscribers, as compared to the present 499, & will operate over 152 miles of line, as compared to present 147 miles.

REA also has allocated $119,000 to Ringgold (La.) Tel. Co. for installation of dial service, construction of 52 miles of new line, & rebuilding 17 miles of existing line. Company now serves 228 rural subscribers on 35 miles of line. Completed system will serve 444 subscribers.

* * *

Highlights:—REA made preliminary survey of Independent Tel. Co., Rosholt, S. D. Company has applied for rural telephone loan; plans construction of automatic system . . . Lee Eikmeier resigned as sec., Garfield (Ks.) Mutual Tel. Co. . . . Vernon Waugh appointed plant mgr., Dighton, Ks., office American Tel. Co.

Ilwaco Tel. & Tel. Co. completed automatic conversion project at Long Beach, Wash. . . . C. N. Augustine elected pres., Harper (Ia.) Mutual Tel. Co.; succeeds A. A. Peiffer, retired due to health . . . Central Tel. Co. started $18,000 rural improvement project at Parker, S. D. . . . O. W. Robbins, sec. of newly-formed Valley Tel. Co-op, Herreid, S. D., announced plans to build county-wide telephone system . . . West Central Tel. Assoc. organized at Wadena, Minn.; co-op will provide rural service to 3 counties . . . Ingebert Fauske is chairman of newly-organized Golden West Co-op Tel. Assoc., Wall, S. D.

South Central Mutual Tel. Co., Benkelman, Neb., filed articles of incorporation. L. F. Nichols, Wauneta, Neb., is resident agent . . . W. C. White appointed dist. mgr., United Tel. Co., San Saba, Tex. . . . Ben Palmer, former plant supt., Telephone Service Co., Bothell, Wash., joined Linn County Tel. Co., Lebanon, Ore., as plant supt. . . . Ray Barnett, Brookings, S. D., is chairman of group organizing new rural telephone co-op . . . Arvy Enloe is chairman of new Bowman-Slope Rural Tel. Co-op, Rhame, N. D. . . . W. B. Bridforth of loan appraisal section, REA, met with members of Sandhill (Neb.) Rural Tel. Co-op.

Wm. Strickler appointed pres., reorganized Euclid (Minn.) Tel. Co. . . . Zenas, (Ind.) Independent Tel. Co. will be taken over by Public Tel. Corp. . . Kim (Colo.) Mutual Tel. Assoc. recently started operations. It is 1st dial system in state to be connected with main lines by radio . . . R. R. Lotspeich retired as mgr., United Tel. Co's exchange at Butler, Mo.; succeeded by R. B. Hunt . . . Harveyville (Ks.) Tel. Assoc. considering plans for complete new telephone system.

Ray Smith

Ray W. Smith, Editor

Looking for long life for poles and crossarms?

● U·S·S Creosote Oil never varies in quality. It's the product of continuous processing in United States Steel's own tar distillation plant—the largest in the world. Residue content is closely controlled . . . toxicity and penetrating power are consistently high.

In terms of performance, this uniformity means you can expect the same long life from every batch of poles and cross arms treated with U·S·S Creosote Oil. It means you can keep replacement costs unvaryingly low by making it standard practice to specify this time-tested preservative.

You'll have no delivery headaches when you specify U·S·S Creosote Oil, for United States Steel has built an enviable reputation on dependable service. To assure prompt attention to orders, five sales offices have been located strategically from coast to coast.

If you'd like more information on U·S·S Creosote Oil, get in touch with the office nearest you; there's no obligation.

COAL CHEMICAL SALES DIVISION
UNITED STATES STEEL CORPORATION SUBSIDIARIES
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Brown-Marx Building, Birmingham 2, Ala. 25 Beale St., San Francisco 5, Calif.

USS TRADE MARK

CREOSOTE OIL

UNITED STATES STEEL

THE TORTURE CHAMBER FAILED TO MAKE THEM YIELD!

STRANDLINK
for SPLICING steel strand

STRANDVISE
for DEADENING steel strand

Strandlink and Strandvise appear to be the fastest way to splice and deadend 5/16" and 3/8" steel strand messenger, static and guy wire—with a holding power greater than the strand itself—no matter the grade.

The heart of the design is the three jaw chuck with hundreds of case-hardened, triple protected, steel teeth housed in a heat treated aluminum alloy tube, that clamp and grip the strand as tension is applied.

Exhaustive laboratory tests, designed to exceed field conditions, appear to prove—

- that **gripping jaws do not damage the zinc coating of the strand,** but actually improve the ability of the strand to resist corrosion even in the gripping areas.
- that the electro-zinc plated and Cronak treated jaws which are also coated with a corrosion inhibitor type oil (No-Ox-id) are well protected and lubricated. (Triple protected).
- that shaking or vibration of even a slack strand **does not loosen** the grip of the jaws if at least 300 lbs. tension is originally applied.
- that vibration of the strand for over 100,000,000 cycles, under 4,000 lbs. tension, does no damage to the strand or to the components of the fittings and has no effect on the gripping power of the jaws.
- that the Strandlink and Strandvise remain undamaged and will hold to the ultimate breaking strength of any given grade of steel strand.

THEY LOWER "INSTALLED COST" . . . SAVE STRAND!

Splices made with Strandlink are made in seconds. Cable spinning machines pass the Strandlink with ease.

Tension, applied with either hoist or block, feeds the strand through the Strandvise any desired distance. The stainless steel bail of the Strandvise eliminates looping and clamping and is pre-formed to fit all standard strain insulators, anchor eyes and pole hardware. Pilot cups guide the strand all the way through the gripping jaws in both the Link and the Vise.

The housing of both the Strandlink and Strandvise is heat-treated aluminum alloy. Vise bails are extra high grade stainless steel. (type 304).

Check These Important Tests
on STRANDLINK and STRANDVISE

Test 1

EFFECT OF VIBRATION ON SLACK STRAND WITH STRANDVISE

A No. 5101 Strandvise with 5/16" steel strand was placed under very light tension (300 lbs.). The assembly was subjected to a shaking machine simulating the case of a slack strand. The gripping jaws of the Strandvise did not relax their grip. (All Strandvise and Strandlinks are internally coated at factory with No-Ox-id oil to provide a corrosion inhibitor and a lubricant.)

The Strandvise was then cut apart and the jaws removed from the strand. No-Ox-id undoubtedly was transmitted from the gripping jaws to the strand and was not chemically removed.

The strand was then given the Preece Test to determine the condition of its zinc coating.

Results: After 6 dips, zinc was found to be removed from virtually all the strand's surface, but even after 11 dips in those minute areas where jaw teeth had left their marks, zinc, or zinc-iron alloy, or both, were still present—still no copper deposit.

Conclusion: First, that the gripping jaws will hold slack strand if the initial tension applied was 300 lbs. or more. Second, that vibration does not induce the jaws to chew the zinc, destroy the protective coating and encourage corrosion. The jaw teeth, rather than harming the coating by pushing the zinc aside, actually increase the density of the zinc—or produce a more corrosive-resistant zinc-iron alloy coating.

Test 2

EFFECT OF SALT HUMIDITY ON STRAND CONNECTED TO STRANDVISE

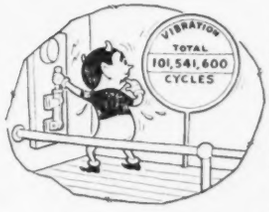
The same assembly as in the above test was subjected to 200 hours of salt-humidity spray (20% solution). The Preece Test showed again that the steel strand and zinc coating will last longer within the jaw area than where the strand was completely exposed.

Test 3

EFFECT OF 10,000 LBS. TENSION ON STRAND CONNECTED TO STRANDVISE

A No. 5101 Strandvise with 5/16" strand was pulled to near ultimate (10,000 lbs.) so jaw teeth would effect maximum penetration of the strand. The strand was Preece Tested. The area gripped by the jaws withstood six dips in the solution—satisfactorily indicating continued presence of the zinc coating.

Test 4



EFFECT OF VIBRATION ON STRANDLINK

A 27 foot span of high strength galvanized steel strand was spliced with a No. 5001 Strandlink. The strand was deadended at each end with No. 5101 Strandvises and tied ahead of each Strandvise to isolate the Strandlink. Spliced span was drawn to 4,014 lbs. tension. A minimum of one million cycles was prescribed. A vibrating driver then effected 90 cycles per second, with 5/16" displacement for over 300 hours. At end of test, cycles totaled 101,541,600.

Results: Examination disclosed that, except for chafing of tie wire at ties, (which was done only to isolate the Strandlink) all parts were in good condition—with no evidence of strand fracture, jaw failure, or damage to strand.

Test 5

TENSILE STRENGTH OF STRANDVISE AND STRANDLINK

Test units were connected to 3/8" 7-strand, high strength galvanized steel wire. Minimum breaking strength of strand — 11,850 lbs. (plus or minus 100 lbs.)

DESTRUCTION TEST RESULTS:

SHAKING ----0
SALT --------0
TENSION ----0
VIBRATION --0
TENSILE ----0

WHAT'S THE USE?

Test No.	Fitting Tested	Test Breaking Strength	Efficiency in %	Location of Break
A	Cat. No. 5002 Strandlink	11,850	100%	1 Strand at Jaw 6 Strands 4" AWAY
B	Cat. No. 5002 Strandlink	11,950	100%	2 Strands at Jaw 5 Strands 4" AWAY
C	Cat. No. 5002 Strandlink	11,880	100%	2 Strands at Jaw 5 Strands 4" AWAY
D	Cat. No. 5102 Strandvise	11,760	100%	3 Strands at Jaw 4 Strands ½" AWAY
E	Cat. No. 5102 Strandvise	11,890	100%	7 Strands 12" AWAY
F	Cat. No. 5102 Strandvise	11,920	100%	7 Strands 12" AWAY

Write for detailed test reports. Ask for samples if you wish. Prices and details on the different sizes and types of Strandlink and Strandvise will be mailed on request. Your "Installed Cost" is what counts—reduce it now!

Reliable

ELECTRIC COMPANY

3145 CARROLL AVENUE • CHICAGO 12, ILLINOIS

OVER 40 YEARS' *Service* TO THE TELEPHONE INDUSTRY

1951

1952

195

Years Ahead...

FOR THE *Years to Come*

THE INDEPENDENT INDUSTRY'S MOST MODERN TOLL SWITCHBOARD

1953 1954
1955
1956
1957
1958

THE *NEW* NO. 3 KELLOGG TOLL SWITCHBOARD

Here is another *major* advance in furthering the Kellogg tradition and pledge—to bring you ever-finer equipment that enables you to render better service more profitably!

The KELLOGG No. 3 Toll Switchboard provides a combination of performance and service advantages not available to you heretofore. Each is the result of creative Kellogg engineering and development that looks not only at today's needs but far into the future. Together, they represent assurance that through the years your toll service standards will remain *truly modern*—with toll operating costs at the minimum.

Now is a particularly good time to be farsighted about improving your toll facilities. Ask your KELLOGG Representative for further information on the KELLOGG No. 3 Toll Switchboard—or write direct.

These are just typical of the *many* advantages you'll find in the new No. 3 Toll Switchboard

- Knock down construction for ease in assembly and low cost in shipment.
- Positional unit easily movable to meet varying traffic conditions.
- Idle line indication or busy lamp—optional.
- Supervisory and ringing equipment placed in the trunk and line circuits
- Ringing, dialing, splitting, coin control circuits common to all cords.
- Meets standards set by Bell Company for inter-toll dialing.
- Minimum transmission loss in cord circuit.
- Low cost and expense per position.
- Dial or key sender pulsing.

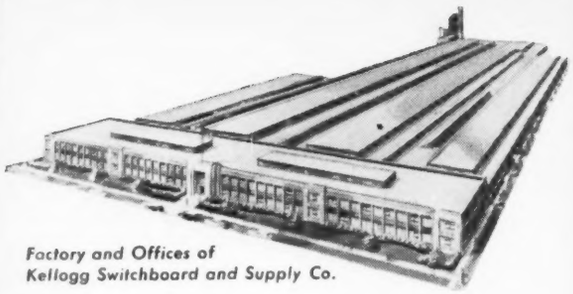
KELLOGG SWITCHBOARD AND SUPPLY COMPANY

Established 1897

6650 SOUTH CICERO AVENUE • CHICAGO

SWITCHBOARDS

EVERYTHING IN TELEPHONE EQUIPMENT



Factory and Offices of
Kellogg Switchboard and Supply Co.

Manufacturers as well as distributors of the finest quality equipment and supplies for the independent telephone field for over fifty years.

Long Life Expectancy—is built into pressure-treated Southern Pine Poles and Crossarms. Carefully and thoroughly treated by the AMERICAN CREOSOTE WORKS, INC., these poles have the extra durability required for dependable service under the toughest climatic conditions. For long lasting, stronger poles, use "Pressure-treated Southern Pine."

Prompt Delivery: Available now, for use with modern cable spinners, is Crapo Galvanized Steel Lashing wire. This heavy-galvanized wire is .091" diameter, comes in 325-foot coils. "Stainless Steel" Lashing Wire can also be furnished promptly in .045" and 0.65" diameters. Both are products of the INDIANA STEEL AND WIRE COMPANY.

for **EASIER ORDERING**
PROMPT HANDLING
QUICK SHIPMENTS

...send your next order to KELLOGG

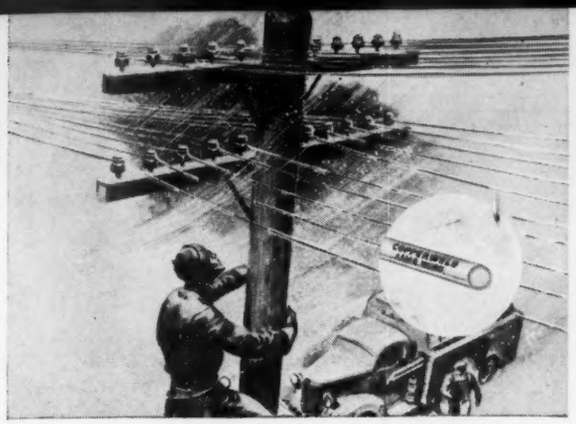
When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

For Service from a Nearby Distribution Point, Order Your Line Supplies from:

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
SUPPLIES

Factory and General Offices: 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILLINOIS
Branch Offices: KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES • DALLAS

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FROM THE



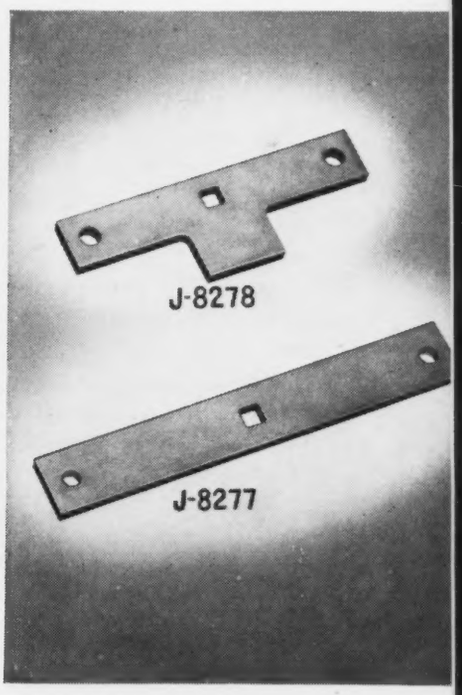
Severe Weather Hazards are not problems when you use Copperweld Line Wire. Thick copper covering resists corrosion. Alloy steel core permits longer spans and provides strength to withstand heavy ice and wind loads. This long-lasting wire is made by COPPERWELD STEEL CO.

Fits Telephone Needs to a "T." Ray-O-Vac Telephone Dry Batteries are built to resist deterioration when not in use. Their internal protective coating, developed by RAY-O-VAC COMPANY, extends their life, whether used or not. The result: Fewer battery replacements, and thus lower costs.

Continuous and Substantial Power Savings are assured by this constant voltage battery charger. 4 Flotrol Chargers will consume less standby power than 1 rotating type charger and will save on installation supervision and maintenance. Maintains close voltage regulation even under heavy transient load conditions. Made by LORAIN PRODUCTS CORP.

Your Battery Problems are Solved when you put Gold Planté and Floté Batteries to work. Unique features of design cut maintenance and charging costs, lengthen life and reduce replacements. Made by GOULD NATIONAL BATTERY INC., a leader in their field.

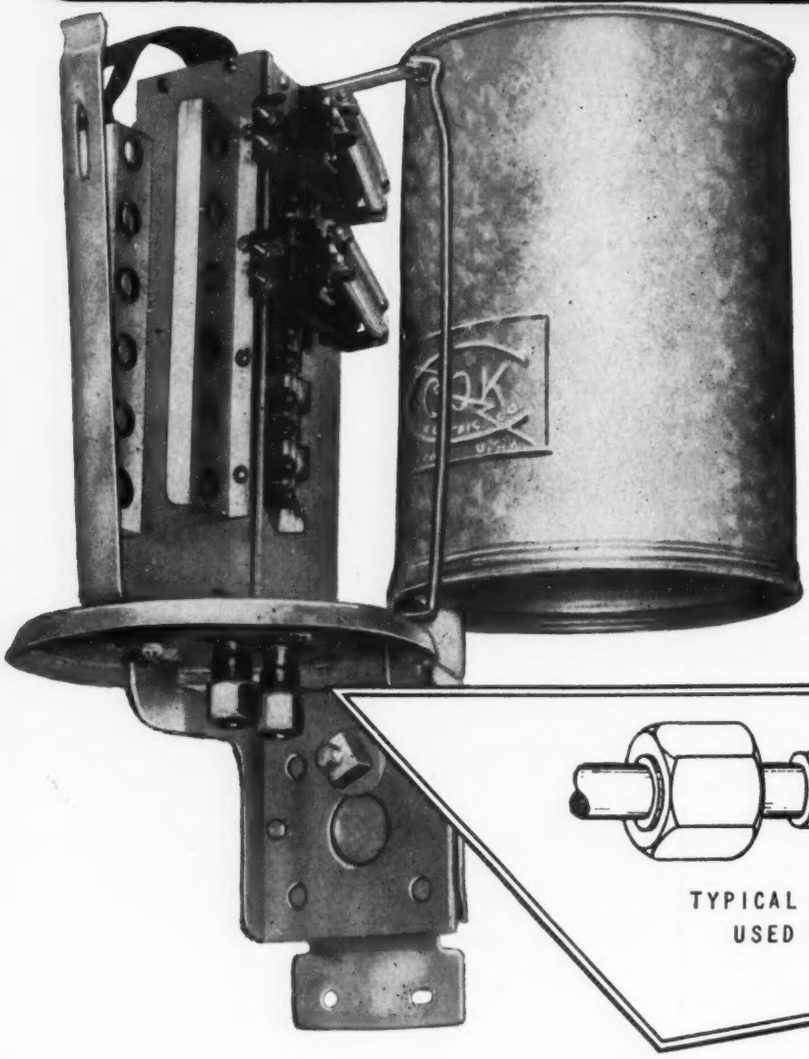
Sealed against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-closed circuits. Avoid trouble with KESTER SOLDER COMPANY solder.



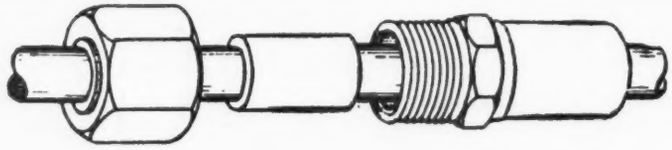
Standard with the Industry for Transposing Wires! No. J 8277 bracket is used with two ½" short shank pins for straight line transposition. No. J-8278 used with two ⅝" short shank pins for transposition on angles. Manufactured by THE JOSYLN MANUFACTURING & SUPPLY CO.

THE KELLOGG SWITCHBOARD AND SUPPLY COMPANY

Simplified Adaptation



The COOK S-20
Pole Cable Terminal
equipped with
IN-OUT COMPRESSION COUPLINGS
for the
NEW PLASTIC COVERED CABLE



TYPICAL COMPRESSION COUPLING
USED ON COOK TERMINALS.

The Cook S-20 protected cable terminal now is supplied with compression couplings as an optional feature. This provides an ideal terminating point for the new plastic covered cable. The terminal is provided with two couplings and the cable can be looped through the terminal without requiring a stub splice, thereby simplifying the line construction and providing a moisture-proof, light-proof chamber for the Cable Conductors.

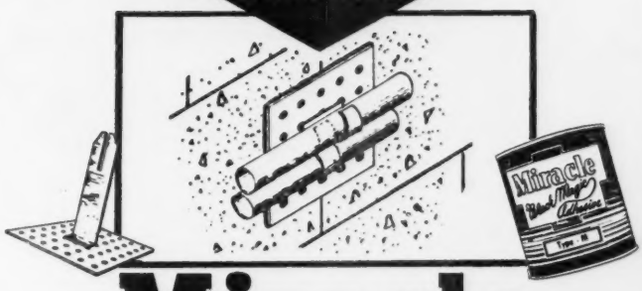
The H-20-7 protector mounts supplied with the S-20 terminals are especially designed for discharging heavy power cross surges and are ideal for joint pole occupancy.

Used Extensively for Rural Installation Since 1897

COOK ELECTRIC Company

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

ELIMINATE
WELDING
AND
DRILLING



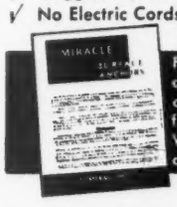
WITH Miracle

SURFACE ANCHORS AND ADHESIVES

Use Miracle Surface Anchors Bonded with Miracle Adhesives to support wires, cables and light weight pipes to masonry, steel or any rigid surface—Quickly and Permanently—Mechanical anchorage no longer necessary!

Check these advantages of Miracle "CONSTRUCTION by ADHESION!"

- ✓ Cleaner—No Muss or Fuss
- ✓ Safer and Superior
- ✓ Goggles Not Needed
- ✓ No Electric Cords or Attachments
- ✓ Less Fatigue to Workman
- ✓ No Noise
- ✓ No Inconvenience to Occupants
- ✓ Saves Labor and Tool Expense



FREE: Interesting, colorful brochure on "miracle surface anchors"! Write for your copy today.

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For anchors write
DEVICES, INC.
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INVEST YOUR "PIN MONEY" IN THE BEST

LOCUST PINS

Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.

OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

GLASS INSULATORS

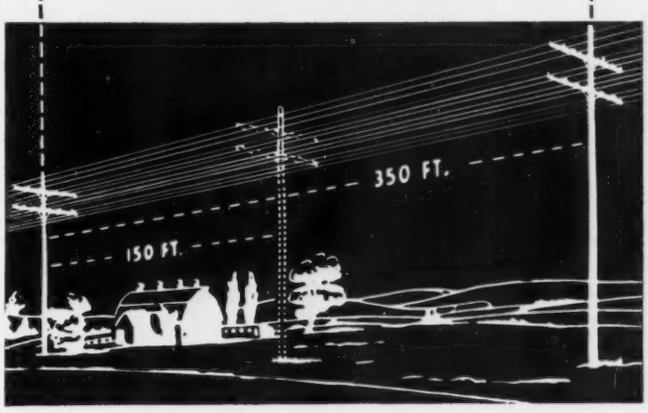
Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

BUCKEYE TELEPHONE and SUPPLY CO.
COLUMBUS 6, OHIO

The longer the span

the lower the cost...



that's how you save with Amertel-135

THE extra tensile strength of Amertel-135 Telephone Wire permits long span construction . . . and saves you money. Because Amertel-135 has tensile strength 2½ times that of regular BB grade wire, you can cut your pole requirements in half. Fewer poles mean less hauling, less digging, less connecting . . . with appreciable reduction in man-hours. You save on insulators, ties, armor wires, guys and other accessory materials too.

High-strength Amertel Wire will withstand the strain of ice and wind loads. This means savings in maintenance costs, and uninterrupted service for your customers. Amertel has much better voice transmission characteristics than the old steel telephone wire, and it has low electrical resistance, too.

Write for complete technical data on Amertel-135 and its companion wire Amertel-85, and our regular grades "E.B.B.," "B.B." and "Steel."

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Look for this tag.
It is your assurance
of highest quality wire.

USS **AMERTEL**
TELEPHONE & TELEGRAPH WIRE
UNITED STATES STEEL

In The News

INDIANA COMMISSION uses Receivership act . . . San Antonio (Tex.) City Council recognizes "right to earn fair return" . . . Associated Tel. Co., Ltd., will spend $29 million during '51 on expansion—improvements. . . .

RECEIVERSHIP ACTION:—Provisions of a 1947 act were invoked for first time in Indiana Oct. 20 when Fountain Circuit Judge Roy C. Fenters appointed Carl Songer, Veedersburg, Ind., insurance man, operating receiver of the Indiana Western Telephone Corp., Covington, Ind.

The appointment was asked by the Indiana Public Service Commission which contended the utility had failed to comply with its long-standing orders for improvement of telephone service at Boswell, Otterbein, Freeland Park and Pine Village. John T. Detchon, who owns many small telephone systems throughout the state, holds controlling interests of the Covington company.

The PSC was represented by Deputy Attorney General Clyde Jones and Clifford Hardy, assistant to PSC Commissioner Hugh W. Abbett. Commission officials said the company had been in violation of its order "many months."

Receivership action through Circuit Courts is the only remedy open to the PSC when utilities fail to comply with its orders, they said.

• • •

RATES:—Recognizing "the right of the telephone company to earn a fair return on a fair value of its property devoted to telephone service within the city limits of San Antonio, Tex., San Antonio City Council approved 29% rate increase for Southwestern Bell Telephone Co. . . . In Washington, Pacific Telephone & Telegraph Co. asked the Public Service Commission, to consider new revenue requirements of $6,392,000, rather than previous $4,249,000 petition, because of effects of increase in corporation income tax, and annual $570,000 effect of new wage agreements. Pacific Tel. declared that a fair rate of return to meet telephone communication needs of the people of Washington, maintain credit, and obtain new capital, is not less than 7½%.

• • •

EXPANSION:—Associated Telephone Co., Ltd., Santa Monica, Calif., will spend nearly $29 million during 1951 on plant improvements and expansion, President E. M. Blakeslee has revealed. By end of 1951, Mr. Blakeslee cited, his company's plant value will be approximately $113,420,000, or nearly four times the valuation at the end of World War II. The company's 1951 construction program includes installation of about $7.5 million in central office equipment and construction of central office buildings for the Malibu exchange and the Lakewood section of the Long Beach exchange. Since 1945, Associated has added 226,000 new stations.

• • •

TRANS-ATLANTIC CABLE:—Western Union Telegraph Co. announced plans to double capacity of its Trans-Atlantic cable system by installing submerged amplifiers in its five cables between the United States, Newfoundland, Ireland and the United Kingdom.

K. B. Mitchell, Western Union's director of International communications, said the new amplifiers are expected to increase the capacity of his firm's cable system by more than 60 million words a year. This would double present capacity.

Two new amplifiers will be inserted in each of the five cables and will be placed about 100 or 200 miles from each shore. The amplifier is a three-stage vacuum tube instrument somewhat similar in its function to the amplifier in the home radio broadcast receiver. It increases capacity by amplifying or "boosting" signals and also reshapes signals which have become weak. Each unit is sealed in a rectangular steel case about five feet long and weighing 1,100 pounds.

• • •

"TIMER":—L. H. Garst, manager of the Webster County Telephone Co., Marshfield, Mo., is considering the installation of timer equipment which will limit telephone conversations to six minutes on rural lines. Need for a "timer" was discovered when Mr. Garst found that some conversations have lasted as long as two hours on a party line and frequently have been timed at 20 minutes or more . . . Manager Garst has but one consolation—the Webster County Telephone Co. has spent about $40,000 on rural lines to furnish better service and the service is so much better that the folks just can't help talking too long.

• • •

METERED TELEPHONES:—The *"Tactless Texas,"* writing in the *Amarillo (Tex.) Globe,* put emphasis on his *"NO"* to the telephone company's proposal that meters be placed on family telephones . . . "The people will not stand for that," he wrote. "All good and true men will rally to the defense of their long-winded wives and insatiable conversationalists among their daughters. It's a woman's privilege to talk all they want to talk. The more they talk over the telephone, the less they will talk perhaps to those close within the home . . . And more power to them and less to the telephone company . . ."

• • •

DIRECTORIES:—*Long Lines Magazine* reports it is not always easy to obtain copies of foreign telephone directories. Many of the east European countries like Russia and the Balkan states are effectively behind the Iron Curtain and they are not interested in having their directories distributed outside of the country. Poland and Czechoslovakia however, for some reason, are still (or were recently) available but the names of their cities have gone native. In Poland, Warsaw is now Warszawa, Danzig is Gdansk, Breslau is Wroclaw and, with their native love for consonants, they have named Bromberg "Bydgoszcz".

Automatically compute your TOLL TIME with CALCULAGRAPH

REDUCES OPERATOR DETAIL WORK...

FIGURES TOLL TIME ACCURATELY....

PRODUCES PERMANENT PRINTED RECORDS...

OPERATES NOISELESSLY...

PRECISION BUILT, LOW IN COST...

CALCULAGRAPH PRINTED RECORDS ARE ACCURATE TO THE SECOND AND IMPROVE SWITCHBOARD SERVICE

CALCULAGRAPH pays its way the moment it is installed. Completely accurate, down to the last second, these precision instruments make it possible to collect all the revenue due on every toll call. Dial features extreme visibility from all angles and lever action is smooth and silent. Several models—engineered especially for the telephone industry—are fully described in the complete CALCULAGRAPH Catalog which is available without obligation. Write for your copy today to Dept. A.

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HARRISON, NEW JERSEY • *THE STANDARD OF ACCURACY SINCE 1892*

NEWS BRIEFS

REA Allocates Funds For Four Loans; $4,141,000 Go To New Rural Co-ops

THE RURAL Electrification Administration in one week—October 23-28 approved four telephone loans for a total dollar amount of over one-half of all previous loan allocations made since the inception of the program. All four of the loans went to cooperative organizations. The total of $4,141,000 in allocations compares with about $8 million made during the entire life of the rural telephone program up to week of October 23.

Allocations were made to Poka-Lambro Rural Telephone Co-op, Tahoka, Tex., for $1,837,000; the South Plains Rural Telephone Association, Lubbock, Texas, $1,227,000; the Roosevelt County Rural Telephone Co-op, Portales, N. Mex., $525,000; and the Winnebago Cooperative Telephone Association, Thompson, Ia., $552,000. In each case, the organizations are acquiring small Independently-owned farm telephone facilities as part of their projects.

The Tahoka organization, receiving the largest loan, expects to construct 2970 mile of line to serve a total of 5169 subscribers. Plans call for 21 dial units to serve the co-op's membership, which REA said is in an area where there is presently little telephone service. The co-op will acquire existing facilities which now serve 31 subscribers.

Also in Texas, the South Plains association expects to serve 3542 subscribers over 1976 miles of lines. Sixteen dial central office units will be established under the co-op's plans. The group is acquiring 30 miles of existing facilities, serving 52 subscribers, but the plant will be replaced by new construction.

Construction of 971 miles of line to serve 1406 new subscribers is planned by the Portales Co-op. The organization also is acquiring 34 miles of line serving 108 subscribers, and will rehabilitate it and include it in the system. Seven unattended dial switching centers are planned.

The Winnebago Cooperative Telephone Association composed of 41 small companies, expects to convert the plant of various component organizations to dial operation and serve a total of 2423 subscribers over 726 miles of line, of which 385 will be constructed, 3¼ will be rebuilt, and the remainder will be existing facilities. At present, the combined total of subscribers of the 41 organizations is 2134, and they operate a total of 747 miles of line. The largest of the 41 has a present total of 237 subscribers.

Carolina Tel. & Tel. Registers Stock Issue

An issue of more than $2 million in common stock was registered with the Securities & Exchange Commission Oct. 26 by the Carolina Telephone & Telegraph Co., one of the nation's larger Independents. An issue of 20,825 shares of $100 par stock is to be offered to shareholders of record at the close of business Nov. 22 in the ratio of one additional share for each five now held. Shares will be offered at $100, and the issue is not being underwritten.

Proceeds are to be used for payment of short-term notes to banks made by the company, from time to time, for general corporate purposes including extensions, additions, and improvements to its plant.

Kim, Colo. Company Uses Radio Link

Kim (Colo.) Mutual Telephone Association, officially started operations recently, according to C. W. St. John, district manager of the Mountain States Telephone & Telegraph Co. in Pueblo.

The system, which is owned by residents of the area it serves, boasts two "firsts" in telephone service in the state. It is the first dial system in Colorado to be connected with main lines by radio. Also no other radio-connected system in the state is as far from main line service as the Kim system, St. John said.

The radio link extends 68 air miles from Trinidad to Kim, establishing a communications tie-in with any point in the world reached by telephone service.

Rio, Wis., Company To Issue Common Stock

The Peoples Telephone Co., Rio, Wis., was recently authorized by the Wisconsin Public Service Commission to issue $69,200 in common stock. The funds will be used to retire current debts and pay for plant additions.

CWA Suggests Forming Wage-Scale Commission

Making what is considered to be the first labor union wage-control recommendation to the newly-created wage board of the Economic Stabilization Agency, the Communications Workers of America (CIO) recently suggested the establishment of a special commission which would govern wages in the telephone industry, similar in function to the Telephone Panel (later Commission) of the World War II National War Labor Board.

In a letter to Cyrus S. Ching, chairman of the wage board of the ESA, made public Oct. 20, CWA President Joseph A. Beirne recommended six steps to be taken by the board in establishment of a telephone wage commission, seeking among other considerations a policy whereby the Bell System would be viewed as an integrated, national organization rather than a group of separate com-

panies in any matters involving wage stabilization.

Steps proposed by the CWA President to Mr. Ching were:

(1) Establishment of a separate commission to handle telephone wage matters.

(2) Setting 1939 as the "key" year for any consideration of basic wage standards and relationships to other industries.

(3) Provision for elimination of discriminatory wage practices, citing telephone industry wage progression schedules which the CWA said ranged from 6½ to 10 years.

(4) Provide for an adjustment formula for elimination or narrowing of "excessive" wage differentials "based on accident of geographical location".

(5) Permit establishment of "clear cut" union security, including union-shop under any laws which may be enacted governing labor-management relations during a period of emergency; and establishment of a policy of equal pay for equal work.

AT&T Net High; Rate of Return Low

Even with the Bell System's consolidated net earnings in dollars for the 12 months ending with the third quarter of 1950 at a record high, as announced in the Oct. 17 report of the American Telephone & Telegraph Co. to stockholders, the return on the plant investment of the Bell System now used in the operation of the telephone business and services is only 4.12%. This is only a fraction above the 4.03% return at the depth of the depression in 1933 and considerably below the return experienced in the 1920's, which exceeded 6%.

The consolidated net income for the Bell System for the 12 months, ended Sept. 30, established a new record. It amounted to $316,223,774, and was a 51% increase over the consolidated earnings of $209,257,769 for the year ended Aug. 31, 1949. With the September figures partly estimated, the net income for the 12 months ended Sept. 30 was equivalent to $10.20 a share, contrasted with $9.25 a share for the comparable period ended Sept. 30, 1949.

On a per-share basis, consolidated net income for the year ended last Aug. 31 was equivalent to $11.98 per share, as compared with $8.91 a share for the period ended Aug. 31, 1949.

The quarterly report to the nearly one million stockholders by A. T. & T. President Leroy A. Wilson recorded that the federal income taxes for the Bell System had nearly doubled for the 12 months ended Aug. 31 compared with the tax payments of the 12 months period a year ago. Mr. Wilson in his report stated that "taxes now being paid by the Bell companies, together with federal excise taxes paid by customers and remitted by the companies to the U. S. Treasury but not including such excess profits taxes as may be imposed, *already equal about* $2.50 *per month per telephone*"

$24,385 Project OK'd For Elroy, Wis.

The Wisconsin Public Service Company (PSC) recently authorized the Elroy (Wis.) Telephone Co. to spend $24,835 to install a new switchboard and other equipment, replacing an old magneto type switchboard now in use.

The company serves 755 subscribers in Elroy and the surrounding rural area.

Electronic Technicians Added To Critical List

The electronics-communications field received recognition of its vital role in national defense with the approval Oct. 23, by Secretary of Labor Maurice J. Tobin of the inclusion of the occupation of "electronic technician" in the list of essential occupations set up to assure manpower in critical jobs to meet the needs of defense industry and the nation's civilian economy. The expansion of the critical occupation list, with electronic technicians as one of the three new occupations, was the first addition to the extremely limited list of critical occupations, originally announced by the Labor Department Aug. 3.

The inclusion of the occupation of "electronic technician" in the manpower list of critical occupations by Secretary Tobin specified that the classification covers highly skilled workers who are engaged in "fabrication, installation, repair, maintenance and manufacture of electronic apparatus and equipment used in communications, detection, measurement and control systems and in the manufacture thereof, such as aid-to-navigation systems, radar and sonar, guided missiles, fire sighting and control systems, electronic computers, electronic instrument and control, including those for special application in meteorological, geophysical, medical, and industrial process fields.

"A worker who constructs or modifies electronic assemblies or components, following design drawing, rough sketches, or oral instructions; tests, calibrates, adjusts, and repairs electronic equipment; and replaces and interchanges component parts using precision machinist's and electrician's tools, and electronic testing and auxiliary equipment. This title does not include those concerned with service or repair of broadcast radio and television receivers, public address systems, commercial X-Ray machines, diathermy devices, electric organs, or similar equipment."

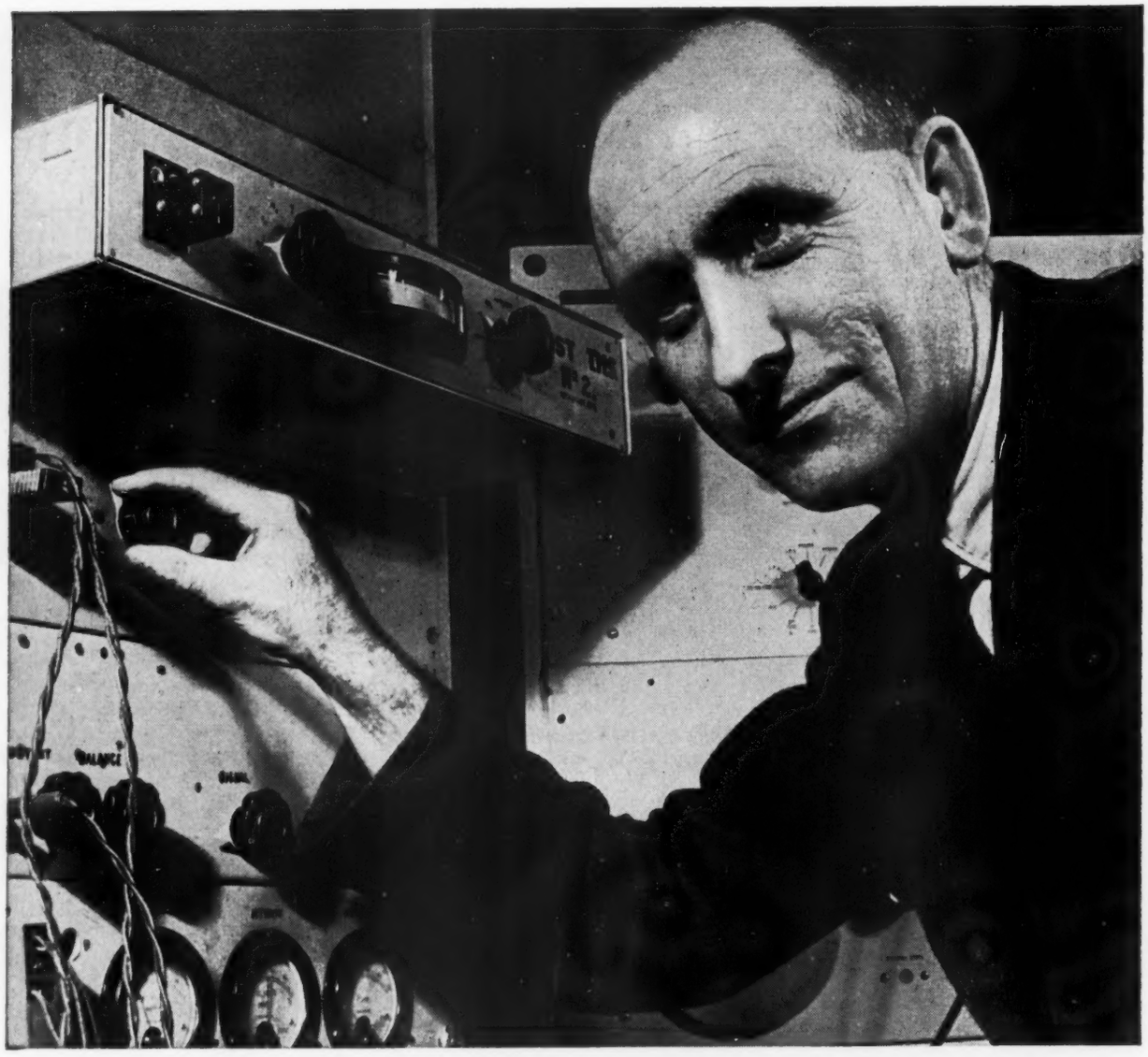
Telephone Industry Spokesmen Discuss "Impact Of Excess Profits Levy"

POSITION of the telephone industry —Bell System and Independent—on the seriously injurious impact of an excess profits tax with a base of 1946-49, during a period of very low earnings, was presented Oct. 27, by six representatives of the industry to the staff of the Joint (Congressional) Committee on Internal Revenue Taxation, headed by Colin F. Stam. The industry spokesmen were understood to have submitted a strong plea for the exemption of all regulated utilities from the tax along the lines already advanced by the National Association of Railroad & Utilities Commissioners.

At the same time, it was learned by TELECOMMUNICATIONS REPORTS that the NARUC has asked the House Ways & Means Committee for an appearance for its spokesmen on the excess profits tax's impact upon regulated utilities on Nov. 21.

Chairman John H. Hessey of the Maryland Public Service Commission, who has been active in studies of the excess profits tax situation on the special NARUC excess profits tax committee, will be the main NARUC witness, supported by veteran Virginia Corporation Commissioner and past NARUC President H. Lester Hooker. It is believed that the House Ways & Means Committee will hear the witnesses for the Bell System and the Independent telephone industry probably after those from the NARUC.

(*Please turn to page* 48)



The measurement of operating frequencies of carrier oscillators.

From First Principles to Finished Product

The technique of measurement in present-day telecommunication engineering embodies, without exception, all the basic principles of electrical science. In the early days, instruments were comparatively crude and insensitive and the methods employed were sometimes haphazard and often unavoidably inconvenient. Since then, the demands of a competitive and highly specialised industry have revolutionised the technique of measurement which has now become a science in its own right. As specialists in the design and manufacture of telephone and transmission equipment and light current signalling devices, Automatic Telephone & Electric Company Ltd. maintain a staff of engineers to design and manufacture measuring equipment which will present, by means of visual and audible indications, a true picture of the characteristics of any product at any stage in its manufacture and under more severe operating conditions than would be encountered in service.

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PRODUCTS OF THE COMPANY INCLUDE: DIRECTOR AND NON-DIRECTOR AUTOMATIC TELEPHONE EXCHANGE EQUIPMENT, AUTOMATIC TRUNK EXCHANGES, RURAL AUTOMATIC EXCHANGES, PRIVATE AUTOMATIC EXCHANGES, PRIVATE AUTOMATIC BRANCH EXCHANGES, SINGLE AND MULTI-CHANNEL (CARRIER) TRANSMISSION EQUIPMENT; INTERCOM KEY-CONTROLLED TELEPHONE EQUIPMENT, CENTRALISED SUPERVISORY REMOTE INDICATION AND CONTROL EQUIPMENT; "RYTHMATIC" RIPPLE CONTROL EQUIPMENT; "ELECTRO-MATIC" VEHICLE-ACTUATED TRAFFIC SIGNALS; MINE TELEPHONES AND COLLIERY SIGNALLING EQUIPMENT.

A 1281-B.104

EDITORIAL

For Telephone Companies — A Hedge Against Inflation

ECONOMISTS say that this country is facing rapid and dangerous inflation unless measures adequate to check it are made effective. Some of those measures, such as higher Federal taxes and curbs on credit and the use of strategic materials, have already been put into effect.

As more and more of the productive capacity of the country is used for military purposes and for the economic and military aid of other countries, less and less of the production will be available for civilian use. As that process goes on, prices are bound to rise, as they have always done under such conditions, unless stiffer and stiffer curbs are made effective. Therefore we face the possibility, and even probability, of either more checks upon civilian spending and civilian use of important materials, or the continued decrease in the value and purchasing power of our dollars.

Inflation, particularly rapid inflation, is a grave danger to any regulated business such as the telephone business, because, under our regulatory process of fixing public utility rates, those rates cannot be increased as rapidly as other prices and costs—and consequently the costs of utility operation—can rise.

There is another aspect of this inflation situation that bothers many people and businesses. That is the question of what will happen to the value of things they own, as the value of the dollar decreases. What bothers them is how and where to find a "hedge" against inflation.

We think the best hedge against inflation that a telephone company can have is a good, well maintained telephone plant, kept modern and kept expanding so as to meet the reasonable (but not necessarily the boom time) telephone needs of the territory it serves . . .

Plus a well trained and efficient organization, with a management sufficiently alert to the trend of the times to know when it must have higher rates in order to supply good telephone service, and with the courage to go after those higher rates promptly and aggressively, plus . . .

Good telephone service, good public relations, and well satisfied subscribers.

History has shown that, during the more or less continuous deflation of the dollar that has been going on in this country for many years, the value of telephone properties such as that described above has continuously increased. That history has shown that, with the constantly increasing demand for telephone service practically everywhere in the country, there has been no better place for the telephone company to put its money than in its own business.

Indications are that, with the population of the country increasing rapidly and with—even under the current restrictions— hundreds of thousands of new homes being built every year, and with the heavy demand for telephone service apparently continuing unabated, more and more new telephone plants will be needed every year. And, in addition to the continuous demand for expanded telephone exchange service, the phenomenal increase in toll business also creates a demand for a constantly expended toll system.

There will be plenty of uses for new money in the telephone business for a long time to come. The telephone industry can, we think, find no better hedge against inflation for the telephone business than the telephone business itself.

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1920 "Cat's Whisker"... or 19-inch Television...you know which one you'd buy today!

AND THE SAME LOGIC APPLIES TO SELECTING A DIAL SYSTEM

In home entertainment or in big-time business, the important question any prospective purchaser of equipment should ask is, "What's newest and best?"

With the ever-increasing trend to dial switching service, independent telephone companies from coast to coast are asking that question and coming up quite consistently with the answer, *Stromberg-Carlson XY.*

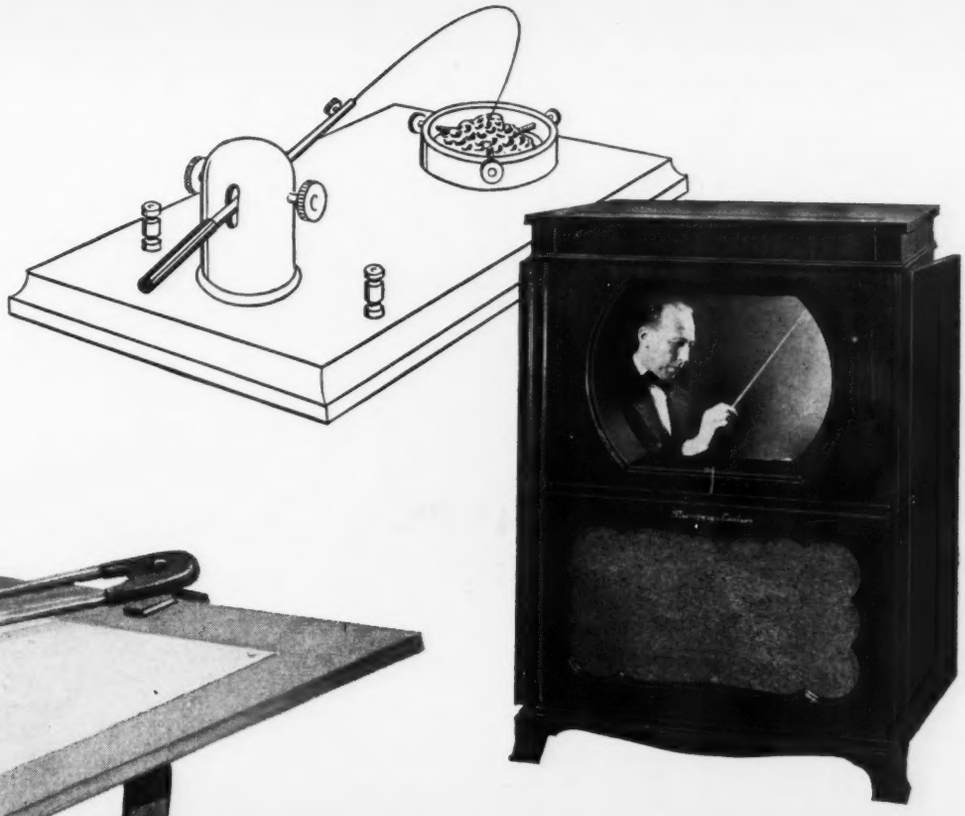
The XY System is the "Television" of telephony—new, modern* and accepted. Behind it is more than a half-century of telephone specialization and ahead of it a future already suggested by well over 100 systems in service or on order.

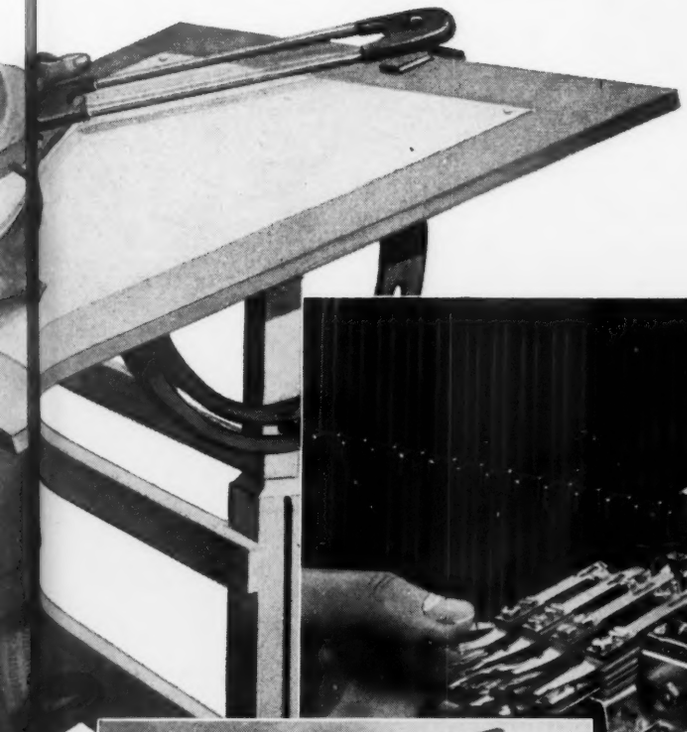
If dial service is in your future, check with the leader — Stromberg-Carlson.

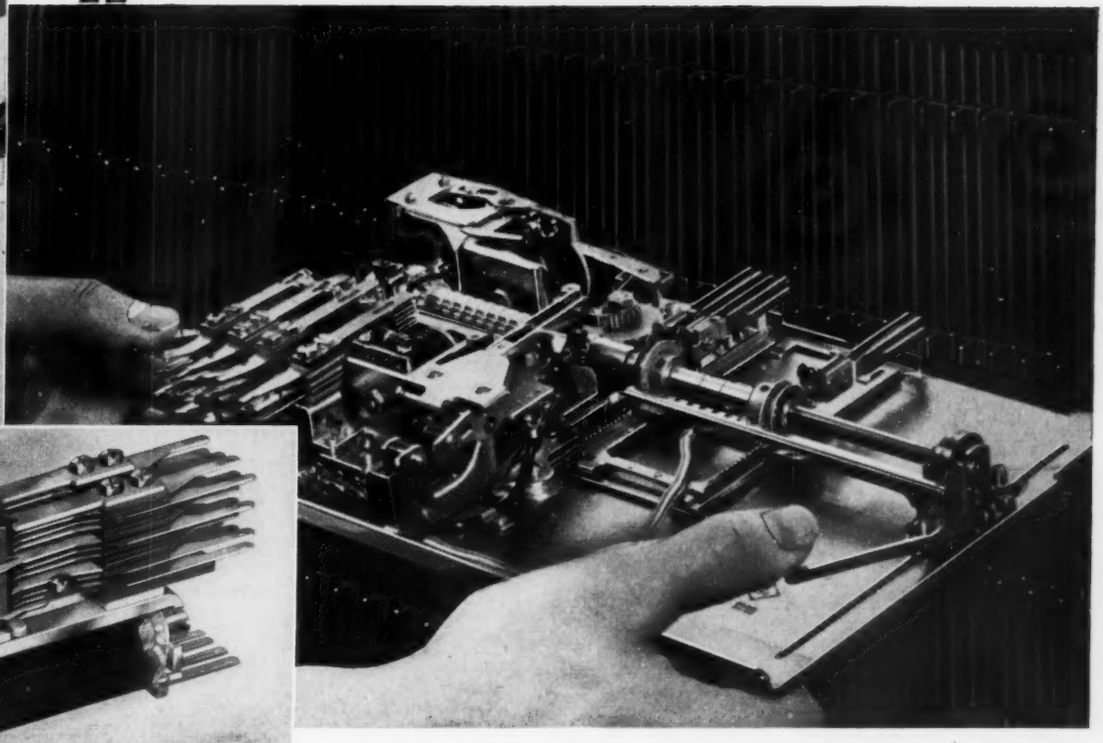
*What makes a dial system modern? Answer: Universal Switches with twin-bladed wipers, twin contact relays, a Fourth Wire and Bare Wire Bank Multiple. XY has them all!

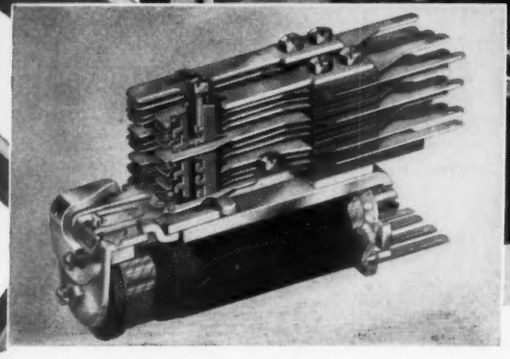
STROMBERG-CARLSON

Factory, General Offices: Rochester 3, N. Y. Branch Office[illegible]lanta 3, [illegible]









STROMBERG-CARLSON XY...*The Newest Dial System in America*... **AND THE BEST!**

lanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto

Washington Bureau Reports

REA spokesman declares agency will continue to administer farm telephone loan program without regard as to whether borrowers are commercial telephone companies or co-ops . . . FCC upholds industry stand on illegal use of facilities.

By ROLAND DAVIES and FRED HENCK

THE RURAL Electrification Administration will continue to administer its farm telephone program without regard as to whether borrowers are commercial telephone companies or cooperatives, but on the basis of such criteria as area coverage and the feasibility of the loans, REA Deputy Administrator George Haggard has informed TELECOMMUNICATIONS REPORTS, Washington correspondents for TELEPHONE ENGINEER Publications, in an interview on the subject.

Answering questions raised by TELECOMMUNICATIONS after REA's approval of four large loans to cooperatives within two days (see page 20), Mr. Haggard declared that there will be no change in the agency's approach to the farm telephone program as a result of the expiration of the one-year preference period for suppliers of existing telephone service, contained in the rural telephone legislation.

He pointed out that the four large loans to co-ops were approved two days before the expiration of the priority period, and after they had been before REA for some time.

In all four recent large loan approvals to co-ops, the REA Deputy Administrator, who is in direct charge of the telephone program, noted, there were no competing applications for rural telephone loans involving service within the co-op's proposed area. One of the four, he said, an allocation to a co-op with headquarters at Thompson, Iowa, involves duplication problems which will be ironed out before the loan finally is made.

Questioned regarding steps taken to assure that no duplication of adequate existing service results from loans to borrowers in states where there is no commission, or where the regulatory body is not empowered to issue certificates of convenience and necessity to co-ops, Mr. Haggard said REA obtains its data both from the borrower and from field surveys made by REA personnel.

If there is any question of duplication raised by another party, such as a telephone company in the area, REA endeavors to work out the problems by conferences and mutual agreement, as in the case of the Iowa co-op, he declared. He cited two specific examples of loan requests which have been held up for some time pending final settlement of duplication issues.

At that time, REA had allocated $12,454,000 in 41 telephone loans, of which 14 were to co-ops, Mr. Haggard pointed out. Of the 14 loans to co-ops, eight were to existing mutuals, and the remainder to new organizations.

Loans to new co-ops have been large, he said (generally ranging from $500,000 to $1.8 million, as compared to the average of around $200,000 for loans to commercial companies), because: (1) the new organizations are starting from scratch, or close to it, and must build virtually all of their systems; and (2) generally they have covered large and "thin" areas. REA's largest loan allocation to date, $1,837,000 to the *Poka-Lambro Co-op, Tahoka, Tex.*, was to an organization setting up so large a system that it will be divided into four exchanges or local calling areas. Co-op members will have flat rate service within their respective calling areas, but will pay a toll rate for calls to parties in the other three sectors.

The Tahoka co-op was established on the large-scale basis because it follows the framework of an existing electrical co-op, and because the larger number of members reduces the overhead per telephone subscriber, Mr. Haggard said. He added however, that REA endeavors to keep down the size of the co-ops—electric co-ops also are showing a tendency toward greater size, with the largest encompassing 19,000 members—because it feels that the advantages of democratic participation in affairs of the organization by all members are lost if the system becomes too large.

Current loan applications from commercial companies far outnumber those from co-ops, Mr. Haggard stated, and future loan approvals can be expected to come in somewhat the same ratio. He added that upcoming loan actions will demonstrate that REA is not concentrating on co-ops simply because of the expiration of the one-year priority period.

(The first rural telephone loan made by REA in the second year of the program—Oct. 28 is the anniversary of the law's enactment—was to the *Marquette & Adams Telephone Co., Oxford, Wisc.* The allocation is for $168,000, for the construction of 12 miles of new line, rebuilding of 140 miles of existing facilities, and conversion to dial. The company will serve an estimated 622 subscribers after completion of the project, as compared to the present 499.)

Mr. Haggard praised the agreement reached by the *Mountain States Telephone & Telegraph Co.* with the *Eastern New Mexico Rural Telephone Co-op* at Clovis, N. Mex., as a landmark in the rural telephone program. At Clovis, he said, a portion of the territory which the co-op proposed to serve came within the Clovis exchange area, but was an

area to which service had not yet been extended. As a result of negotiations, agreement was reached on new boundaries and on extended local service area arrangements with Clovis. The Clovis exchange is to establish two unattended dial offices within the area under discussion, and Mountain States Tel. & Tel. will provide operator assistance.

Because few REA borrowers have progressed to the point of full equipment installation, the current war situation and resultant materials and equipment shortages have not shown up seriously to date, Mr. Haggard said. He added that REA currently is informing its electric borrowers of developments in the defense mobilization picture with possible effects on them, and is expected to consider a similar plan for telephone borrowers as the program develops.

Mr. Haggard said that very few instances of "pirating" subscribers of existing telephone organizations by organizers of prospective co-ops have been complained of directly to REA headquarters. It was pointed out that the problem is less likely to arise in states where commissions issue certificates of convenience and necessity, and that REA has instructed its field personnel not to take such steps, and has made a similar request of co-op managers.

The four large loans under discussion totaled more than $4 million. In addition to the one to the Tahoka, Tex., co-op, they went to the *South Plains Rural Telephone Association, Lubbock, Tex.*, $1,227,000; the *Roosevelt County Rural Telephone Co-op, Portales, N. Mex.*, $525,000; and the *Winnebago Cooperative Telephone Association, Thompson, Ia.*, $552,000. The last-named is the one in which question of duplicating existing Independent telephone facilities have arisen. The co-op would be a combination of 41 small companies, mutuals, and co-ops in the area.

More than 600 loan applications totaling over $75 million, from 41 states and Alaska, have been received, it was said. By June 30, the close of the 1950 fiscal year, REA had made 17 loan allocations totalling about $3.5 million. At the end of first year, Oct. 28, the total allocations were near the $12.5 million mark.

FCC Upholds Industry Stand On Illegal Use of Facilities

THE POSITION of the U. S. Independent Telephone Association and the Bell System, during Senate subcommittee hearings last summer, that telephone companies cannot be expected to enforce the laws against gambling, but should be expected only to cooperate with proper authorities in discontinuing or refusing service at their request, has been upheld by a Federal Communications Commission examiner.

Examiner Fanney N. Litvin, issuing an initial decision in a case resulting from the complaint of a Washington, D. C., couple against the tariff provisions of the *American Telephone & Telegraph Co.* and the *Chesapeake & Potomac Telephone Co.* relating to discontinuance of service for illegal use, pointed out that a telephone company "is not a law enforcement agency and should not be required to assume the function of law enforcement."

Mrs. Litvin emphasized that "The vital responsibility of maintaining law, order, and the prevention of crime is vested in law enforcement agencies established by the government for that purpose. These law enforcement agencies, through their personnel, must be presumed to act within their proper sphere, and without improper motive.

"Unless and until the courts shall decide that the action of a law enforcement officer in requesting the telephone carrier to discontinue service to a subscriber is unwarranted and baseless, we think such a request must be considered an incident in the prevention of crime and maintenance of law and order, binding upon the telephone carriers, and as controlling in determining that the telephone carrier had 'probable cause' for discontinuance or refusal of service. . . ."

Mrs. Litvin's decision will be adopted by the FCC if no exceptions are filed within 40 days.

Television

THE PARAMOUNT importance of television to the FCC has again been illustrated in the agency's decision not to rule on an important application of an Independent telephone company under the decision on current TV frequency allocation matters.

In a request submitted by Federal Telecommunication Laboratories and the Peninsular Telephone Co., Tampa, Fla., the Commission has been asked to approve use of the 2110-2200 megacycle area for common carrier fixed operations. The applications brought out that virtually no use of the frequency space is being made by the services to which it is now allocated; that equipment has been developed for common carrier operation there; and that Peninsular, because of frequent storm damage to its wire facilities, is anxious to have the permission to operate radio relay facilities in that frequency space to assure uninterrupted continuation of its vital public services in one of the country's most important national defense areas.

The FCC took the position, however, that any changes in the allocation of frequencies in the non-government fixed and mobile service bands between 1850 and 13,200 megacycles would affect the assignments to other services in those areas, and said that it will consider the matter after the television proceedings, which will require a lengthy time for decision.—THE END.

Coming Conventions

1950-1951

Alabama Telephone Association, Jefferson Davis Hotel, Montgomery, Nov. 20-21.

Missouri Telephone Association, Muehlebach Hotel, Kansas City, Nov. 20-21.

Louisiana Telephone Association, Heidleberg Hotel, Baton Rouge, Feb. 3-4.

Minnesota Telephone Association, Hotel St. Paul, St. Paul, Feb. 6-8.

Texas Telephone Association, Hotel Texas, Fort Worth, Mar. 12-14.

Nebraska Telephone Association, Lincoln Hotel, Lincoln, Mar. 27-28.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 3-4.

Illinois Telephone Association, Hotel Pere Marquette, Peoria, Apr. 19-20.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 23-25.

Pennsylvania Independent Telephone Association, Abraham Lincoln Hotel, Reading, Apr. 30 and May 1.

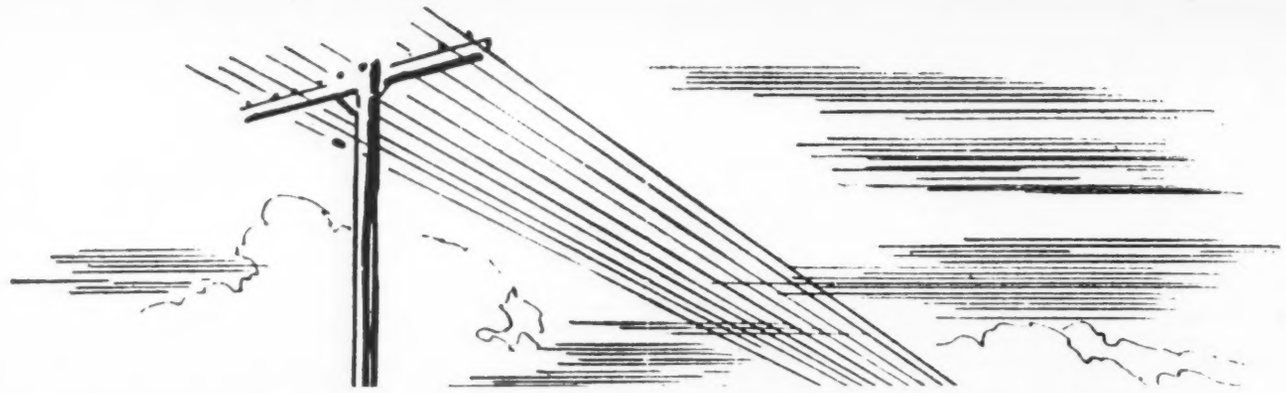
Indiana Telephone Association, Claypool Hotel, Indianapolis, May 9-10.

United States Independent Telephone Association, Executives' Conference, Greenbrier Hotel, White Sulphur Springs, West Virginia, May 14-15.

Kansas Telephone Association, Town House Hotel, Kansas City, May 22-23.

New York State Telephone Association, Mark Twain Hotel, Elmira, June 6-7.

Washington Independent Telephone Association and Oregon Independent Telephone Association, Hotel Multomah, Portland, June 15-16.



Rebuilding The Rural Outside Plant

SECTION XII of Mr. Reed's article continues his discussion of attaching drop wire on the subscriber's residence. Part XI of this article appeared in the October FORTNIGHTLY TELEPHONE ENGINEER.

AT INTERMEDIATE points in run—Use 5/8" bridle rings in #10-14 x 1" lead screw anchors or 5/8" drive rings in 1/4" x 1" hammer drive anchors. "C" knobs with 2½" x #10 RH galvanized wood screws in #10-14 x 1" lead screw anchors may be substituted for the bridle or drive rings. See *Figure* 116 for methods of supporting drop runs around corners and at turning points.

At entrance into residence—Use "C" knob with 2½" x #10 RH galvanized wood screws.

HOLLOW TILE CONSTRUCTION:

Span attachment for drop angle with house less than 30 degrees—Use "S" knob and 5/16" x 5" RH toggle bolt with washer under head.

Span attachment for drop angle with house 30 degrees or more—Use "S" knob and house bracket assembled with 5/16" x 2" FH galvanized stove bolt and mounted with two 1/4" x 4" RH toggle bolts.

Secondary attachment for wire run at location of span attachment—Mount "C" knob with 3/16" x 4" toggle bolt or use an extra drop wire clamp to support the drop wire run.

At intermediate points in run—Use "C" knobs mounted with 3/16" x 4" toggle bolts.

At entrance to building—Use "C" knob with 3/16" x 4" toggle bolt.

Drop Wire Terminations

THE DROP WIRE run from the span attachment may terminate in an outside protector mounted on the wall or it may enter the house and terminate in an inside type protector, depending on whether or not there is a place inside the residence for the protector. It is generally preferable, however, to place an outside protector, since it will then be accessible to the maintenance man. Experience indicates that most of the station troubles are traced to dirty or pitted protector blocks, which can be cleared by cleaning or replacing the blocks. It would be a waste of time and effort for the maintenance man to have to drive a long distance to clear a case of trouble, only to find that he is unable to obtain access to the protector because the subscriber is not at home.

When the residence has a basement and it is desired to install a protector in the basement, the entrance is made as indicated in Figures 117 and 118. The wire run may enter through the foundation sill, or wood frame of the basement window, depending on the construction of the building. In certain situations it may be necessary to enter through the foundation wall, but this should be done only as a last resort. In this case the hole is drilled through an intersection of the mortar joints.

The hole for the wire run should slope upwards slightly, to prevent water from entering. If the hole cannot be made to slope upwards, a drip loop should be formed in the wire, as shown in *Figure* 117. In the case of entrance through wood, one or two 5/16" x 3" porcelain tubes are needed to insulate the wire, as well as to protect it mechanically. Porcelain tubes are not required for entrance through solid masonry or a foundation wall, unless appearance is

a factor. A bridle wire run from an outside protector through wood siding also does not require insulation with a porcelain tube, unless the wood at this point is damp or rotten. Entrance is made by one of the following procedures:

Entrance through wood sill or wood frame of basement window—Bore 5/8" hole and use one or two porcelain tubes as required for complete insulation.

Entrance through masonry or foundation wall—Drill 3/8" hole and wrap wire with friction tape to plug hole. (This procedure is also employed in the case of bridle wire entering through wood and not requiring the use of a porcelain tube.)

Entrance through brick or stone veneer—Drill 3/4" hole through brick or stone until wood sill is reached and then bore 5/8" hole through sill. Insert two porcelain tubes, one from each end of the hole.

It is important that the drop wire run to a protector installation in the basement be supported on porcelain tubes, as shown in *Figure* 118, to conform to Fire Underwriters' regulations.

Placing Station Protectors

STATION PROTECTORS are needed to prevent, or at least minimize, damage to the subscriber's property from lightning discharges, a power line cross with the telephone line, or heavy induced currents resulting from a short-circuited or temporarily unbalanced power line.

When the drop is to terminate in an outside protector, the protector is mounted on the outside of the house, usually at a level about 5 feet above the ground, so as to be accessible to the maintenance man without the necessity for using a ladder and at the same time place the protector out of the reach of small children. Figure 107 shows the proper location of the protector and *Figure* 119 indicates the method of connecting the drop wire, the bridle wire to station instrument, and the ground wire. (*Figure* 120 shows a typical installation on a farm residence.) The bridle wire run should enter the residence at a point as close to the station instrument as possible. An ideal installation would be one that brings the bridle wire through the house wall just under the protector (*Figure* 119) and with a wall set mounted on the inside approximately opposite the protector, thus effectively concealing the run.

If it is not practicable to bring the wire run into the house in the foregoing manner, the run may be car-

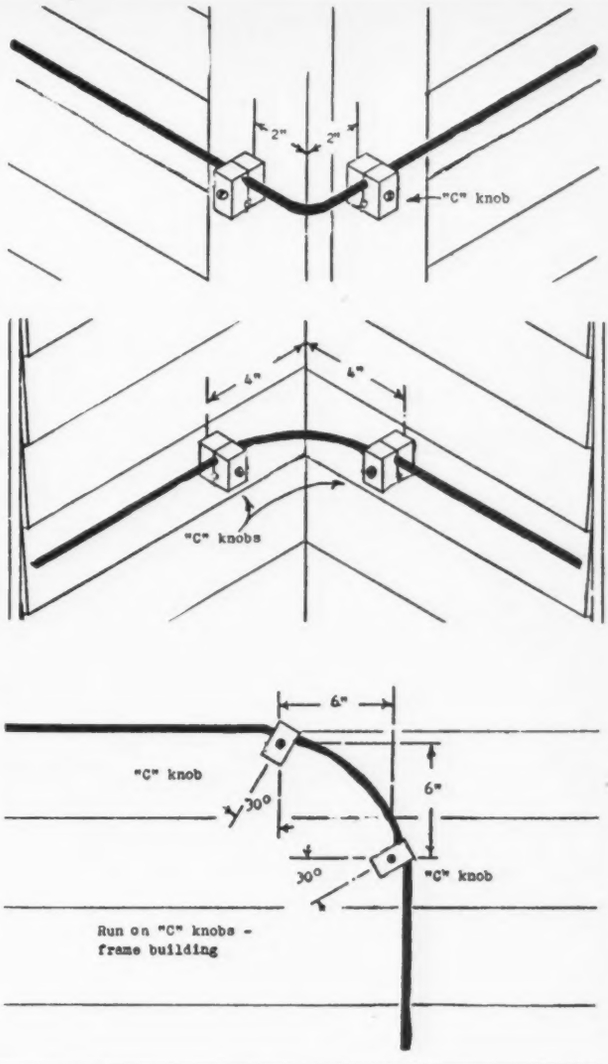


Fig. 114—Method of supporting drop wire around inside corner (upper), outside corner (middle), and turns in run from a horizontal to a vertical direction (lower).

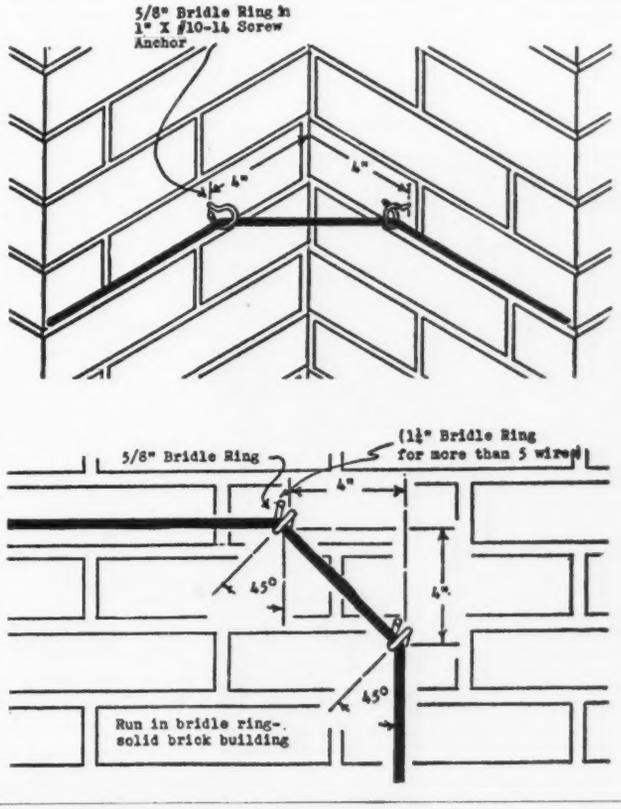


Fig. 116—Method of carrying drop wire around inside corner (upper) and turn from a horizontal to a vertical direction (lower).

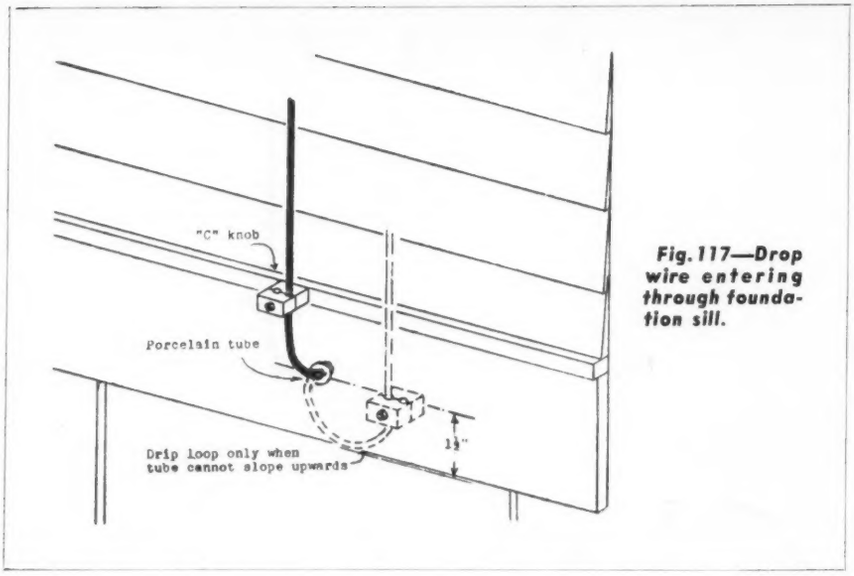


Fig. 117—Drop wire entering through foundation sill.

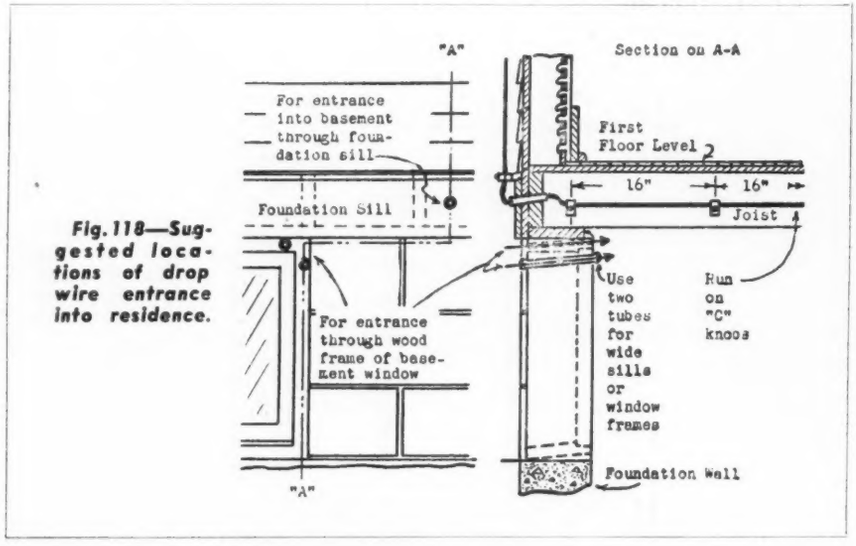


Fig. 118—Suggested locations of drop wire entrance into residence.

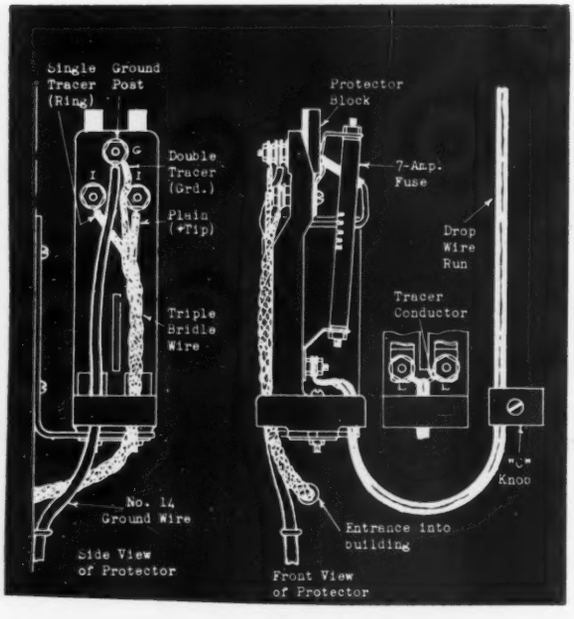


Fig. 119—Method of wiring outside protector.

ried on "C" knobs spaced about 4 feet apart in the horizontal direction, or 8 feet apart in the vertical direction. This arrangement results in a neater appearance of the run than would be possible if drive or bridle rings were used to support the run from the protector to the entrance into the house. It is permissible to use the metal rings in this situation, but bridle wire sags to some extent as the conductors are soft copper and stretches quite easily. The "C" knobs will hold the run taut. Care, however, should be taken to lay the conductors flat in the split knobs, so they will not cut into each other. Staples or wiring nails must never be used to fasten the bridle wire run.

Methods of attaching the protector mounting to the residence depends

Fig. 120—Typical outside protector installation on a farm residence.

on the construction of the residence. On frame houses, mount the protector with the required number of #12 RH galvanized wood screws, using ¾-inch screws on hardwood sidings, 1-inch on soft wood sidings, 1½-inch on asbestos-cement or brick roll sidings, or 2-inch on stucco walls. (Drill clearance holes in asbestos-cement covering or stucco, before driving screws.) On brick or stone walls, use 1" x #12 RH galvanized wood screws in 1" x #10-14 screw anchors. In the case of hollow tile walls, drill no more than two mounting holes for 3/16" x 4" toggle bolts, locating the holes diagonally opposite each other.

An inside protector may be installed on a floor joist, as shown in *Figure* 121 or on the foundation wall or ceiling covering in the basement, as illustrated in *Figure* 122. In locating and mounting the protector, the following precautions will be found desirable:

(*Please turn to page* 53)

Small Company Talk

By Bill Corman

HERE IS a system for figuring operating schedules that by-passes guessing and trial-and error procedures.

HI NEIGHBOR! One of the most brain-teasing (and sometimes downright exasperating) jobs that fall my lot from time to time is that of figuring our operating schedules. Because of the particularly fast rate of growth that many companies are experiencing now-a-days, I suspect that some of you may be running into this problem also. Within the past few years, I suppose I have had to figure a new schedule (with more hours in it, of course, than the old one) at least ten times. Sometimes they dovetail nicely and I can figure out a schedule in a couple of hours. At other times, it seems that no matter what I do, I come out with odd hours left over that do not fit into the picture. On such occasions, I have drawn lines on pieces of paper for two or three days. But I have now developed a little system that tells me in fairly short order whether I can do what I want to do or not, and that by-passes a lot of the hit-and-miss guessing and trial-and-error procedures that I used when I first started on this problem.

If you already have a good system for working out these schedules, it may well be that the suggestions I will have to make will be of no value to you, but if you are just beginning to experience difficulty, then they probably will help.

In the first place, I have found that using a ruled piece of paper, and laying out the hours of the day across the top of the paper provides the least confusing medium for developing a schedule. The working time of the different shifts is then drawn on by the use of horizontal line. In *exhibit* 1-A are shown four complete operating schedules. For an example, let us take the "Three Operator Shift". This schedule calls for only one position to be occupied during the 24 hours each day. The different shifts are lettered: "A", "B", "C" and "X". Where there is an "S" preceding the letter, it means that this shift is also used on Sunday. The solid lines indicate switchboard operating hours, and the dotted lines indicate office or clerical hours. In the "Three Operator Shift", shift "A" works from 11 p.m. to 7 a.m., straight through without relief. Shift "B" works from 7 a.m. to 11 a.m. and from 3 p.m. to 7 p.m. Shift C works from 11 a.m. to 3 p.m. and from 7 p.m. to 11 p.m.

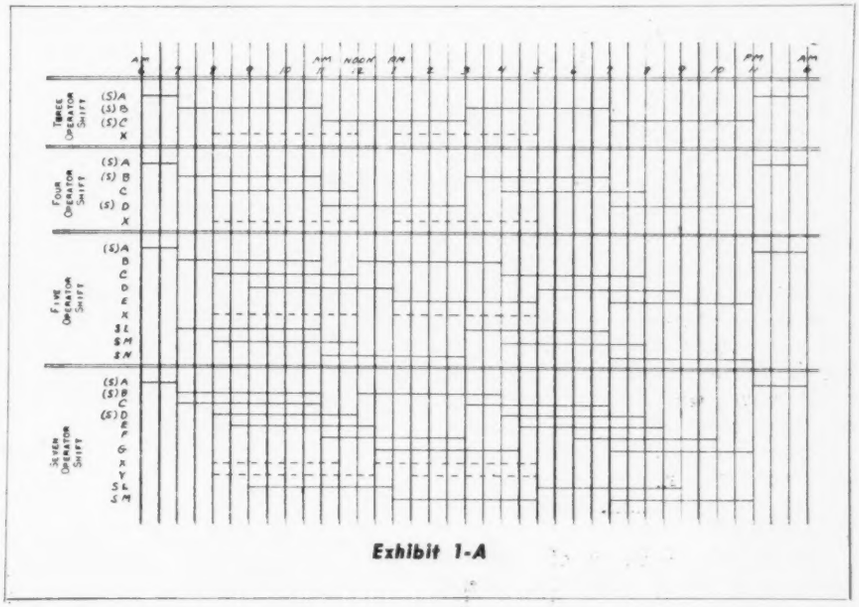


Exhibit 1-A

Now refer to Exhibit 1-B. It will be first noticed that this "Three Operator Shift" requires five full time employees. *Exhibit* 1-B is used to develop the days-off of the different girls, and to provide relief for the shifts when the regular girl has a day off. For example, Girl #1 works the "A" shift on Sunday, Monday, Tuesday, Wednesday and Saturday; and she has Thursday and Friday off. On her days off, she is relieved by Girl #4 who, it will be seen, works the A shift on Thursday and Friday, the "B" shift on Monday and the "C" shift on Tuesday and Wednesday. Girl #5, the office girl, works the "B" shift on Sunday, and the regular office shift, shift "X", on Monday, Tuesday, Wednesday and Friday, it being assumed that the office will be closed on Sunday, Thursday and Saturday (or that the office is so arranged that the switchboard operators can re-

ceive collections from the public and thus keep the office open on some of these days).

The three other shifts are developed similarly, that is the "Four-, "Five-, and "Seven-Operator Shifts". By a study of Exhibits 1-A and 1-B, it will be seen how these work out, to provide more hours of work.

A word about the assignment of Girl #6 in the "4 Operator Shift" might be in order. To fill the required vacancies, this girl is actually scheduled only two days of work—shift "D" on Friday and Saturday. If this schedule is studied carefully, it will be seen that the operators on duty on Sunday will probably require some assistance, perhaps as much as four to six hours, over that scheduled. This girl #6 can fill in such hours as are necessary. It may also be that the office girl will require some help, and if so, then girl #6 can help out in the office. There may be enough work to provide her a full 40-hour week. If not, she will have to be a part time worker.

Now let us turn from these examples to the method by which a schedule is developed. The first job is to determine your requirements. This can best be done by the use of a peg count, as discussed in this column some time ago. By "requirements" I mean the determination of how many operators are needed at the switchboard during each hour of the day, or each half hour, and how many hours will be required to do the office work each week. Also, a separate study will be made for Sunday, since the requirements of this day usually differ considerably from week days.

The actual developing of a schedule is laid out in Exhibit 2. Let's follow that exhibit through step by step. The first step is laying out the hours of the day across the top of the paper. Since the hours 11 p.m. to 6 a.m. usually require but one operator even in fairly good sized offices, I usually group them together as shown on the exhibit.

Step Two: Across the sheet, write in the number of operators required. In the example, it can be seen that one operator is required from 6 to 8 a.m., two operators from 8 to 9 a.m., three operators from 9 to 11 a.m., two operators from 11 a.m. to 7 p.m., etc., on through the entire 24 hours. The next job is to draw lines directly beneath these hourly requirement figures as shown. This is not necessary, but is a big visual help in the next step, I have found.

Step Three: Here we start filling in the actual working shifts. We start with the assumption that each girl is to work two four hour tricks each day with a break between the two, except the night operator who works straight through. First, we line in the night operator's shift by drawing a line from 6 to 7 a.m. and from 11 p.m. to 6 a.m. Below this line we draw two four hour lines, one at the end of the day and one at the beginning, the idea being to maintain the same number of lines for each hour as we set up in step two. Thus line "A" is drawn from 7 to 11 a.m., and line "H" from 7 to 11 p.m. Now we drop down another space and draw in lines "B" and "G". It is necessary to begin line "B" at 8 a.m., and to end line "G" at 9 p.m., in order that we will provide two operators on duty from 8 to 9 a.m. (as required by step two), and to have only one operator on duty after 9 p.m., respectively. Next, we drop down again and draw in lines "C" and "F", beginning line "C" at 9 a.m. in order to put the third operator on duty; and we end line "F" at 8 p.m. in order to take the third operator off duty at that time. Last, lines "D" and "E" are drawn, in similar manner. It will now be noticed that the total number of lines drawn across each hour in Step Three is the same as the number drawn across in step two. This step three is the difficult one and we will come back to it a little later.

Step Four: In step three we drew in lines "A" through "H"—a total of eight four-hour lines—not counting the line for the night operator. In step four, these lines are combined as follows, the first four are paired with the last four, in consecutive order. That is "A" is paired with "E"; "B" with "F", etc. This gives us four eight-hour shifts, each with a break, plus the night operator's shift.

Step Five: This step may not be

	3 Operator Shift							4 Operator Shift							5 Operator Shift							7 Operator Shift						
	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
Girl # 1	9A	A	A	A	O	O	A	9A	A	A	O	O	A	A	9A	A	Ab	A	O	O	A	9A	A	A	O	O	A	A
Girl # 2	O	O	B	B	B	B	B	O	O	B	B	B	B	B	O	O	B	B	B	B	B	O	B	B	B	O	B	B
Girl # 3	9C	C	O	O	C	C	C	O	C	O	C	C	C	C	9M	C	O	O	C	C	C	O	C	C	C	C	O	C
Girl # 4	O	B	C	C	A	A	O	9D	D	D	D	D	O	O	O	D	D	D	D	D	O	9D	D	D	O	D	D	D
Girl # 5	9B	X	X	X	O	X	O	9B	B	C	A	A	O	O	9N	E	O	O	E	E	E	O	O	E	E	E	E	E
Girl # 6								?	?	O	?	?	D	D	9L	B	C	C	O	O	D	O	F	O	F	F	F	F
Girl # 7								O	X	X	X	X	X	O	O	X	E	E	A	A	O	9M	O	O	G	G	G	G
Girl # 8															O	O	X	X	X	X	X	9B	E	F	D	D	O	O
Girl # 9																						9L	G	G	A	A	O	O
Girl # 10																						O	X	X	O	B	C	X
Girl # 11																						O	Y	Y	Y	Y	Y	O

Exhibit 1-B

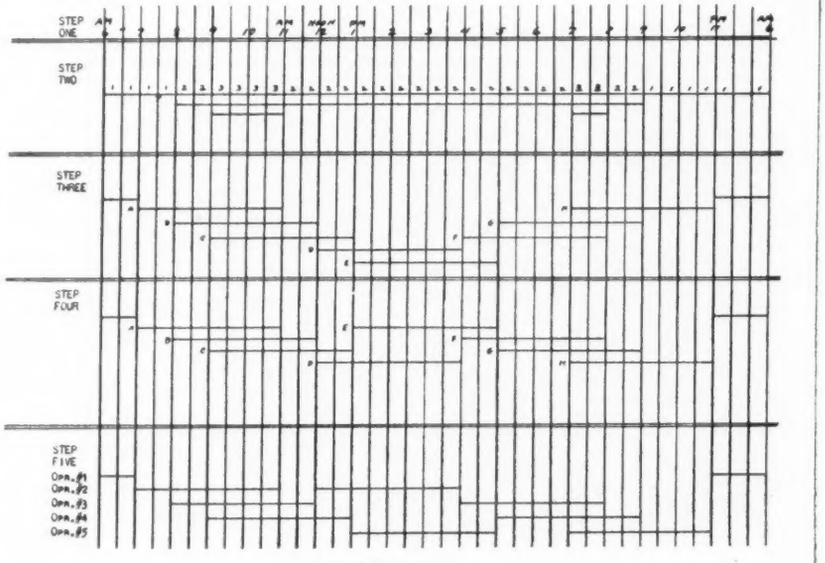


Exhibit Two

necessary, or possible, but usually it is. By a study of the lines drawn in step four, we see that both the first day shift and the last day shift can be improved by switching lines "E" and "D". In other words, by combining lines "A" and "D" we get a better shift than we had when "A" was combined with "E". Likewise, the last shift is improved by combining "E" with "H" rather than "D" with "H". These shifts are improved because the break between the two four-hour tricks is reduced. Thus, upon the completion of step five, we have our basic week-day schedule developed. The same process must now be gone through in order to develop the Sunday schedule: that is, steps two through five, starting off in step two with the required operating hours for Sunday as developed by the peg count. Also, it will be noticed that what we arrived at by step five of Exhibit Two is the same schedule as shown in Exhibit 1-A and 1-B as the "Five Operator Schedule".

When the job has been developed this far, the next step is to develop a chart such as those shown in Exhibit 1-B. Across the top of the paper list the days of the week, beginning with the day on which your official "work-week" begins. Then down the left side, list Girl #1, Girl #2, etc. Following through on this "Five Operator Shift" example in exhibit 1-B, we notice that Girl #1 works the A shift every day except Thursday and Friday. The "O's" indicate days off. Girl #1 is therefore the regular night operator. Girls #2 through 5 are the regular day operators, Girls #6 and 7 are the relief operators, and Girl #8 is the regular office girl.

The developing of your counterpart of Exhibit 1-B will be dictated largely by the likes and customs in your office. For example, in the schedule shown here, four of the girls in the "Five Operator Shift" work every Sunday and 4 do not work on Sunday at all. Also, each girl has two days off during the week, and in every case, in this particular example, these two days are together. Variations in the arrangement of the days off can eliminate both of these conditions if your girls do not like them.

Now, let's go back to step three in Exhibit Two for a moment. This is the hardest step to work out. In the example shown, it worked out fine, because it was set up to work out that way. In actual practice, it hardly ever comes out so nice on the first try and then you have to start shifting the lines around. For example, instead of coming out with an *even* number of 4-hour lines, you may come out with an *odd* number, which means that there will be one 4 hour trick left over when the lines are paired. What we have done in the past when this was the case, was to divide the time of one office girl, so that she worked 4 hours in the office and the other 4 at the switchboard to take up that odd 4 hour shift.

Even more frequently, when you work it down, you will have an hour or two here that is filled but is not needed, and an hour or two there that is needed but not filled. There are several strategems that can be resorted to in order to meet this condition. The night operator's schedule can be shifted up or back an hour or half-hour. For example, she can be assigned the hours 10 p.m. to 6 a.m. instead of 11 p.m. to 7 a.m., etc. Occasionally, you may find that making one 4½ hour trick combine with one 3½ hour trick will fill in the gap or eliminate the duplication. Every now and then, when it won't fit any other way, I set up a 3-3-2 shift instead of a 4-4. That is, I set up one shift with three hours, a break, 3 more hours, another break and then 2 hours to finish out the 8. This is ordinarily a last resort, for most girls do not like a shift broken up in this manner. Another trick that sometimes works is to add an hour or two to your requirements, or to shade off an hour or so. But one rule always holds good. Work from both ends of the schedule down and in toward the middle of the day. If odd hours are left over, they can be more easily handled in the middle of the day than they can early in the morning or late in the evening. Nobody wants a two-hour trick, for example, at 6 in the morning or at 9 in the evening.

In our company we have followed one custom that has perhaps cost us some money, but it has certainly paid handsome dividends. Every girl who comes to work for the telephone company must first learn to be an operator regardless of what her job is to be later on. Thus, any office girl is available for a "split-shift"—part office work and part operating. Also, every office girl is available for operator duty in case of emergency, sickness, or unexpected traffic peaks. Furthermore, we make it a point to keep the office girls' "hand in" at operating, by scheduling a little operating for them all the time; otherwise they would soon get rusty. As a further point, we have found that knowing how to be an operator is a big help in doing much office work, such as grading, sorting and posting toll tickets, handling trouble reports, acting as "information," etc. And incidentally, another advantage is that anytime I come out with an hour or two of needed operating at

(*Please turn to page* 75)

Your Association

THE WORLD is made up of people, and as people we have our personal likes and dislikes, but where your business is concerned, you cannot afford the luxury of showing your feelings to your customers any more than you can afford to withhold your membership because of a dislike.

You pay taxes to maintain a Fire Department, but you don't have a Fire Engine sitting on the lawn, waiting for a fire to happen. And you know, when you call the Fire Department that they probably won't be able to save the house or barn, but you do expect them to prevent a total loss of all your buildings, equipment, etc.

You buy Sickness, Health and Accident Insurance, but you don't have a Doctor sitting on your porch, waiting for someone to get sick. But, when you need a Doctor, you know how to get him and you know his bill will be paid before you call him. And, the patient may die—even then. But, you're satisfied to pay taxes for the Fire Department or Insurance, regardless of whether you use them or not.

So, with the Association. Your dues are a form of taxes or insurance through which you may get "help" when you need it. If you never need help yourself, directly, what you pay helps another, and whatever that help may be it has it's beneficial effect upon you and your operation. —*Excerpt from address made by Frank B. Twigg, secretary of the Michigan Independent Telephone Association, at the recent Michigan Association convention.*

It really doesnt hurt if a magneto telephone is

is beautiful . . .
When your customers receive this handsome Leich 900 magneto telephone, they'll be convinced your company is wonderful. You will be just as pleased . . . for this one telephone, just as is, can be used for wall or desk installations, can easily be converted to common battery or dial service. Many years later, you'll still be pleased and proud . . . and perhaps richer, as a result of its many years of excellent, trouble free service.
Leich Sales Corporation, 427 W. Randolph, Chicago 6, Illinois.

How Radio Can Serve The Independent Industry

STRESSING THE importance of Independent telephone company managers, engineers and plant men understanding and appreciating the various ways in which radio can be useful to the telephone industry, *Ballard Atherton*, president of the Mutual Telephone Co., Honolulu, Hawaii, addressed the USITA convention on the afternoon of October 10.*

Through presentation of an interesting review of the development and use of various methods of transmitting the human voice between points, Mr. Atherton illustrated that radio is "neither a very special tool nor a very new transmission tool of our industry."

"Certainly," he said, "it is not a method that any Independent telephone company should shy away from or fail to consider as to its possible advantageous use. Of course, all telephone companies do not need radio any more than we all need to use coaxial cable or multi-channel carrier systems. It is, however, highly desirable that telephone management and telephone engineers in particular have a basic appreciation of where and how radio can fill our needs, and thus better meet the needs of the public whom we serve."

Mr. Atherton described several types of telephone service in which radio is either desirable or essential. He pointed out that radio is essential in the provision of long overseas telephone circuits.

"Much research," he said, "and development work has been done on long submarine cables and repeaters suitable for voice circuits. While such a cable is technically possible, I believe it likely that long overseas circuits will continue to be transmitted over radio paths for a good many years to come."

Mr. Atherton also commented that radio is, and probably will continue to be the only possible means of providing voice communication to moving vehicles—to autos, ships, trains and airplanes.

"Then," he said, "there are the relatively short over-water circuits such as to Catalina Island off Southern California, to Cape Charles in Chesapeake Bay, to Vancouver Island and between the Hawaiian Islands, where either radio or metallic circuits might be used and where the relative advantages of each must be carefully considered. A local 'loop' to a subscriber in a remote region is another example of a case where a conventional wire circuit might be used but where radio may provide a far less expensive and even a more reliable installation."

Ballard Atherton, president of the Mutual Telephone Co., Honolulu, Hawaii, told USITA convention audience that radio is a very important tool in the business of transmitting the human voice between two points.

As his last illustration of the types of telephone service in which radio is either desirable or essential, Mr. Atherton stated that radio trunk systems are now, and to an increasing extent undoubtedly will provide telephone companies with a transmission path that has certain advantages over the more usual methods employing wire or cable.

Discussing some of the basic considerations involved in the use of radio by a telephone company, Mr. Atherton took as a specific example an installation using radio to provide toll trunk circuits to connect two points, or two exchanges 50 miles apart in a given telephone company's system.

"Perhaps," he said, "both exchanges are attended toll offices—but to make our example a bit more interesting and still entirely practical, let's assume one exchange is an unattended CAX. The radio trunk or trunk group is, naturally, to be an integral part of our complete telephone system. It should be useable by our toll operators and talked over by our subscribers exactly as though it were a conventional wire trunk. In fact it should so well fit into our system that neither operators nor subscribers will be aware of the fact that a portion of the circuit in use is a radio path."

Mr. Atherton pointed out that the basic problems confronting a telephone engineer if he were asked to provide a group of three trunks by conventional means from the toll office to the unattended CAX 50 miles away would involve:

(1) The trunk facilities might be provided by three metallic open wire pairs or by a phantom group, or by three cable pairs, or by one metallic circuit and two superimposed carrier channels.

(2) Loading coils or voice repeaters might be required.

(3) Materials and methods of construction of the wire or cable trunk line would be an important part of the engineer's considerations. (Mr. Atherton mentioned at this point that if this were a new route, it is hardly possible that cable would be considered, but this is mentioned merely as one conventional method of providing such a trunk group.)

(4) At the two ends of the trunk—the toll office and the unattended CAX—certain terminal equipment would have to be provided to properly connect these trunks to the toll switchboard at one end and to the CAX equipment at the other.

"In considering the possible methods and choosing the most suitable equipment," Mr. Atherton said, "engineering and management decisions would have to be made having to do with such matters as first cost of the installation, maintenance costs and reliability, possibility of growth and the feasibility and cost of adding additional trunks as required."

Adding radio to the possible choice of methods available to the engineer, Mr. Atherton commented that "radio brings with it no magic that eliminates these basic considerations of first cost, annual cost, reliability, and flexibility for growth."

"The ability of radio," he said, "to favorably, or more favorably answer such matters must be carefully considered. . . . Essentially all that is involved to meet the particular

**Part One of this summarization of papers presented at the 1950 USITA Convention appeared in the October issue of TELEPHONE ENGINEER and MANAGEMENT.*

requirements of the example is the substituting of a radio transmission path in place of a wire or cable transmission path. The requirement for three trunks could easily be met simply by superimposing regular carrier channel equipment on our basic radio circuit, and the necessary dialing, supervisory, or other control functions between the toll center and the remote CAX could likewise be provided by suitable carrier and terminal equipment.

"One very significant and different matter that does enter the picture when we consider using radio is that of selecting the proper radio frequency and securing from the Federal Communications Commission a license authorizing the use of such frequency. But this is by no means a mysterious problem or one that an Independent telephone company cannot cope with, even if it has had no previous experience with radio. . . "

Mr. Atherton strongly recommended that where there is a problem of transmission and conventional types of construction are difficult, costly, unreliable or for some other reason unsuitable, consideration should be given to radio.

He stated that if there appears to be any possibility that radio might be useful in a telephone system, a survey by a qualified telephone engineer would be advisable.

"Such a person," he said, "perhaps in conjunction with your own engineers, would carefully consider the matters of first cost, maintenance, reliability and other such pertinent factors. If the survey 'proves in' the use of radio, he could then furnish detailed technical specifications for the necessary equipment and probably also assist you in applying to the FCC for a frequency assignment and station construction permit.

"Perhaps you will also need outside assistance in making the installation of the equipment, antennas, etc. Once you have gone into radio, however, you will, in accordance with FCC regulations, require qualified and properly licensed personnel to operate and maintain the equipment. Even though you don't have a qualified radio engineer in your company who could make the important initial studies and recommendations, it is quite probable that you will find in your organization one or more individuals who are reasonably well acquainted with radio principles and equipment, and who do or can qualify themselves for its proper operation and maintenance. If not, you will of course have to employ such personnel."

In conclusion, Mr. Atherton emphasized that radio should be considered as one of a number of transmission tools or methods available to the telephone engineer. "I urge," he said, "that Independent company managers and engineers, even though not familiar with its more important technical aspects, learn to appreciate the general possibilities of radio so that they will be able to put it to work for them when and where it can best be of service."

A Pacific Coast Operating Man Speaks His Mind

ADDRESSING THE second general session of the USITA Convention on Wednesday October 11, D. O. Hood, president of the Columbia Utilities Co., Medford, Ore., stated that a growing and serious problem of all companies, large and small, is the matter of adequate rates to balance constantly increasing costs.

"In the case of some companies," Mr. Hood said, "especially smaller concerns, exchange rates have about reached maximum levels and any further increases might work toward pricing themselves out of business. In such cases, and where additional operating revenues are necessary, consideration might be given to applying to regulatory commissions for toll surcharges applicable to both outgoing and incoming traffic. Several such surcharge schedules have recently been granted by the California Commission, and at least one other Pacific Coast Commission has indicated favorable consideration where no other solution seems possible."

Discussing financing requirements, Mr. Hood stated that the advent of the government into the loan field through its Rural Electrification Administration agency offers some possible relief to hard-pressed small companies.

"The administrative heads of REA," he said, "seem to be approaching their responsibilities in dispensing government loan funds in a business like manner and seem to be sensitive to the necessity of realistic rates. . . ."

Mr. Hood pointed out that in the private field, very few institutional lenders are interested in making loans of less than $100,000 and in most cases minimum limits are nearer $200,000. He commented that companies able to qualify for such amounts and over are experiencing no particular difficulty in securing long-term financing at fairly attractive rates. But where equity financing is necessary the problem becomes more difficult.

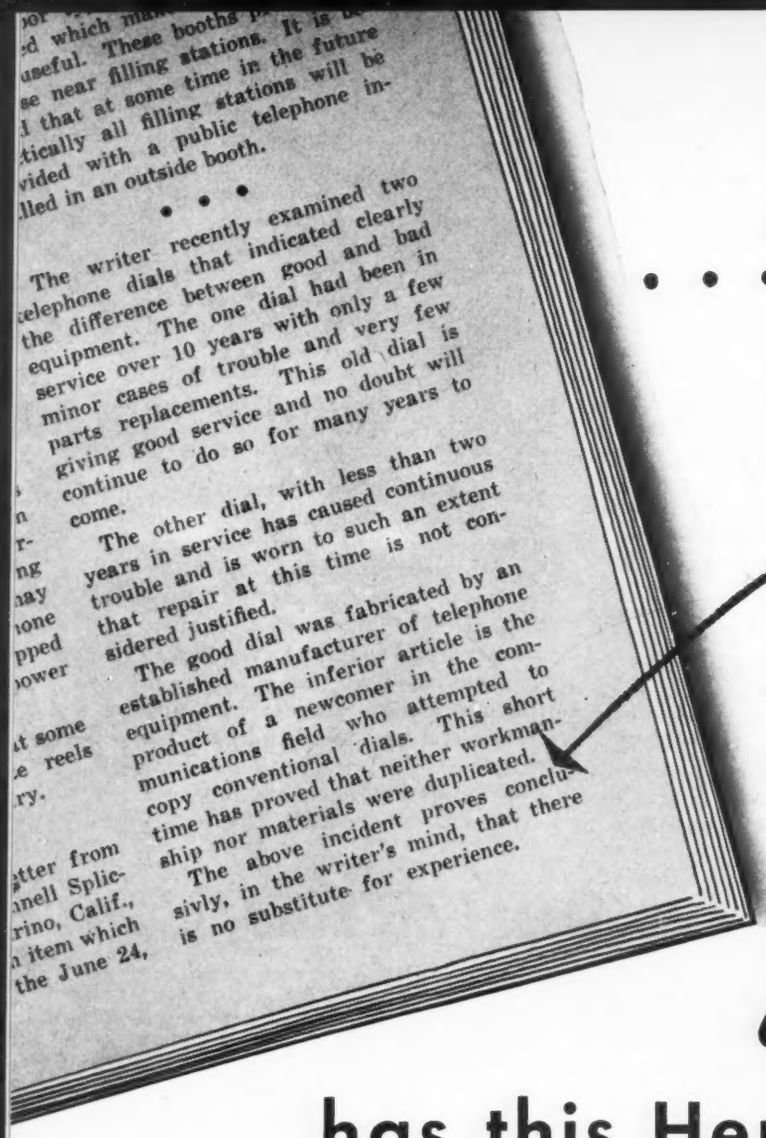
D. O. Hood, president of the Columbia Utilities Co., Medford, Ore.

"Considering all the circumstances," Mr. Hood said, "it is not surprising that many Independent owners, especially those of smaller companies turn a receptive ear to prospective purchasers, Bell or otherwise, and the number is likely to increase."

Mr. Hood urged that Independent owners considering the sale of their properties, make their first approach to the Independent industry.

"I think," he said, "we of the Independent industry must assume a responsibility to assist to the utmost in finding Independent buyers for Independent properties. This will be a major undertaking if effective results are to be achieved. Our Independent owners desiring to sell out have a right to expect the leadership of their industry to provide them with a market, without subjecting them to the possibility of selling under distress conditions. If such Independent owner is unable to find an Independent purchaser for his property on a fair basis then he can-

(*Please turn to page* 42)



useful. These booths p
se near filling stations. It is
l that at some time in the future
tically all filling stations will be
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lled in an outside booth.

• • •

The writer recently examined two telephone dials that indicated clearly the difference between good and bad equipment. The one dial had been in service over 10 years with only a few minor cases of trouble and very few parts replacements. This old dial is giving good service and no doubt will continue to do so for many years to come.

The other dial, with less than two years in service has caused continuous trouble and is worn to such an extent that repair at this time is not considered justified.

The good dial was fabricated by an established manufacturer of telephone equipment. The inferior article is the product of a newcomer in the communications field who attempted to copy conventional dials. This short time has proved that neither workmanship nor materials were duplicated.

The above incident proves conclusively, in the writer's mind, that there is no substitute for experience.

...“there is no sub

. . . . . .

...and Only the

Automatic Electric Dia

has this Heritage of *Experience*

ALL dial experience began with Automatic Electric's first dial, made in 1895. It was cumbersome and crude, but as you can see here, it developed rapidly until in 1909 it reached the small size which has ever since been standard. That dial incorporated two principles that had been pinpointed by experience as "musts"— the uni-directional impulse cam that always produces uniform pulses . . . and the high-speed worm-driven governor that assures constant speed. These features, too, have since been proved by forty years of operating experience.

Even that was only the beginning! Continual searching probes, striving always for improvement, have borne fruit in the dial of today that's known for its remarkable record of dependability. And still our engineers study every detail for possible improvement; challenged by a whisper-quiet dial, they even want to take away the whisper!

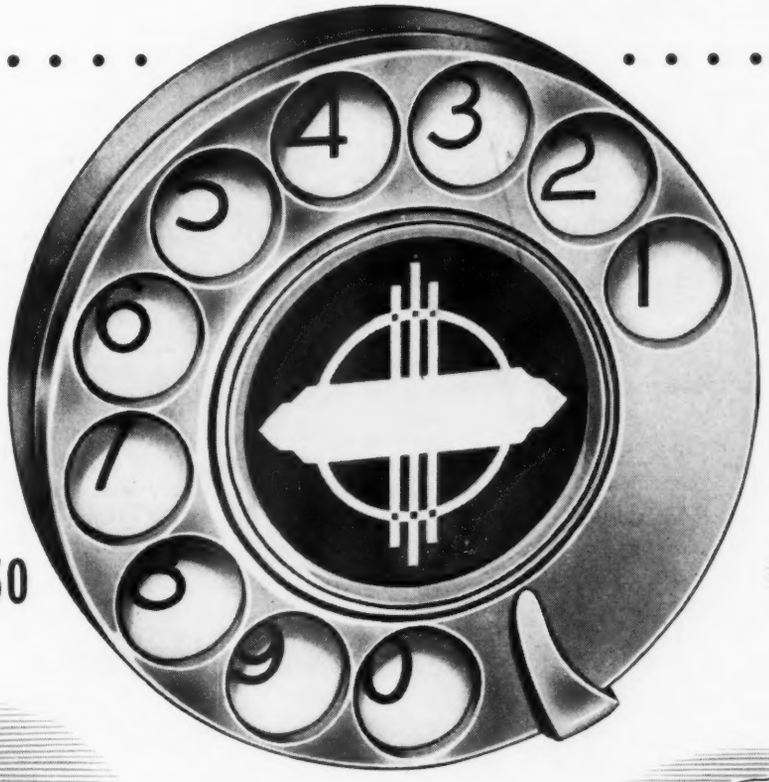
Automatic's files bulge with experience — experience that steers our research toward production practicalities and away from drawing board dreams. This experience brings you the finest dial possible, with all features directed toward long service life. Extensive tests indicate that with an Automatic Electric dial, you could dial twenty 5-digit calls every day from now until the year 2075!

It's true, "there is no substitute for experience"—and as with Strowger Automatic equipment, there is no experience more far-reaching than that behind the Automatic Electric Dial.

...bstitute for experience."

Says RAY BLAIN *Technical Editor of Telephony, in his "Plant Man's Notebook" of August 19, 1950.*

...Dial



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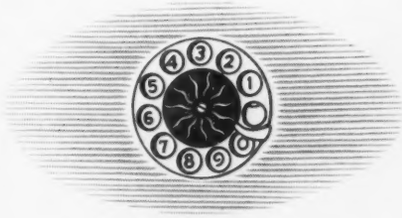

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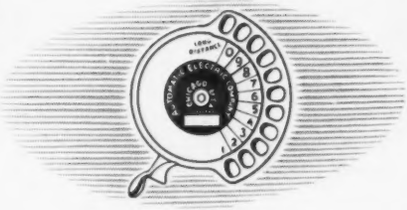

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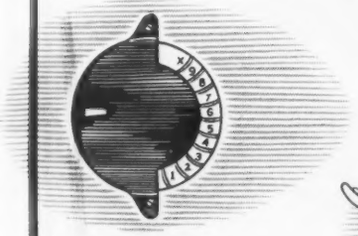

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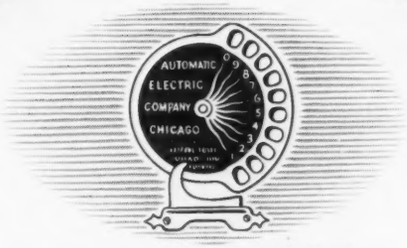

1903

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
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1033 West Van Buren Street, Chicago 7, U. S. A.

ASK ANY OPERATOR...

They'll all tell you they prefer RUNZEL NYLON CORDS.

Their reasons will vary from ease of handling to better appearance. RUNZEL NYLON SWITCHBOARD CORDS give better service because the smooth texture of the nylon cord cuts down wear . . . and for the same reason they withstand rugged handling.

Runzel

QUALITY CORDS

You pay no premium when you equip your switchboard with Runzel Cords . . . but you reap dividends through many, many years of fine service. You'll like the features of RUNZEL CORDS . . . we invite your inquiry.

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4727 WEST MONTROSE AVE.
CHICAGO, ILLINOIS

not be censured for turning to a Bell company."

Mr. Hood stated that on the Pacific Coast it has been possible to do "a good job of keeping Independent properties in our section under Independent ownership." However, he commented that the job is becoming increasingly difficult because so many of the owners are growing old, or finding difficulty in financing their expanding operations.

"I believe," he said, "our Bell System friends share a common interest with us in preserving and even expanding the ratio of Independent ownership and operation."

Stressing that it was his belief that a drift toward more Bell System acquisitions and possible entry of REA financed cooperatives into the buying picture would pose a threat to further thinning of Independent ranks below the safety in numbers level, Mr. Hood suggested that "the time is due to take stock of the ratio situation and decide definitely what our course is to be henceforth."

Stating that "many of our people are in need of help and more of them are likely to be," Mr. Hood commented that "it would be very constructive if the Bell companies and the Independent companies in various respective areas would tackle the problem of integration."

"It seems to me," he said, "that a lot of territorial rearrangements that could be effected by the trading of properties between Bell and Independents and between two or more Independents which would bring about better integrated operating areas might result in the merging together of several small companies to make one integrated area, and this would have a salutary effect upon their financing ability, or at least it might result in a grouping together for technical development and operation, even if not an actual financial merger. I know this has been done in a few places in a small way and I know of one instance where it is being considered on a rather large-area basis, but I think it can well be studied on a much larger and more extensive basis and soon."

While the number of companies is certain to show further shrinkage, Mr. Hood stressed there was no reason for the Independent segment of the industry to materially decrease in ratio. Mr. Hood declared that weak situations should be diverted into stronger hands and Independent properties should be sold to Independent companies to the greatest extent possible. He added that there might be consideration by the Bell companies of actual sales of pieces of Bell properties to Independents. He urged contact with investment bankers through regional studies to find the availability of adequate capital and loan funds. He concluded with the highest praise of the efficiency and splendid management and service of the Bell System.

Telephone Communication In A New Era

APPEARING at the general session of the USITA Convention on Wednesday morning, October 11, *Bartlett T. Miller,* vice president of the American Telephone & Telegraph Co., New York City, commented that present day events and problems affect the telephone industry very closely.

"We've all heard of moving with the stream, running with the tide, and so on," he said. "Nowadays there are some strong tides running that we started ourselves and it's up to us to navigate them. Take rural service for example. If telephone service generally were scarce or slow or limited or unreliable, or all of those things, I doubt that many farmers would want it. But the fact is that we have made it generally fast and plentiful and good and it will take your voice almost anywhere you want to send it, and of course farm people want it. Why shouldn't they? And we must give it to them."

Mr. Miller emphasized that it was the desire as well as the obligation of the telephone industry to provide farmers with telephone service.

"I realize," he said, "as you do that the industry has done a magnificent job in extending and improving service in rural areas. I appreciate that the farmers of America have always had a far better service and more abundant telephone service than the farmers of any country in the world, and more so today than ever before. As evidence of that, just since the war we have brought about a 50 percent increase in farm tele-

phones and half the country's farmers now have service, including the increasing numbers in the more remote areas of the Nation.

"So we have made great progress in the rural field. But we also know that whatever tastes good, whets the appetite for more. Progress sets up a demand for more progress. And just as sure as today is today and tomorrow is tomorrow, if we don't meet that continuing demand, somebody else will."

Discussing the use of radio in telephone communications, Mr. Miller stated that already the industry has a wide variety of techniques and services in operation.

"Years ago," he said, "we bridged the oceans and now with radio relay we are again spanning the continent. The telephone is talking from cars on the roads and from highballing trains, from planes in the clouds, and from boats in the rivers and lakes along the coastal seaways. It is bringing new security to remote and hitherto isolated corners of the land.

"How far will the radio art eventually extend the telephone's frontiers? That is anybody's guess—but if there is one thing we telephone people have learned from experience, it is not to underestimate future potentials. We know we can't foresee the end result of the new ideas and new techniques and new services we set in motion. We can't put limits on tomorrow.

"After all, we have now shown the world that telephone service is not limited to talking over a wire from an office or armchair. We have pulled aside a curtain and given the public a whole new outlook to explore. Having done this, we must accept the consequences. We must be prepared to serve—not here and there or in bits and pieces—but wherever the need exists. And we must face the fact that if we do not serve in that way, others may jump in to fill the gaps."

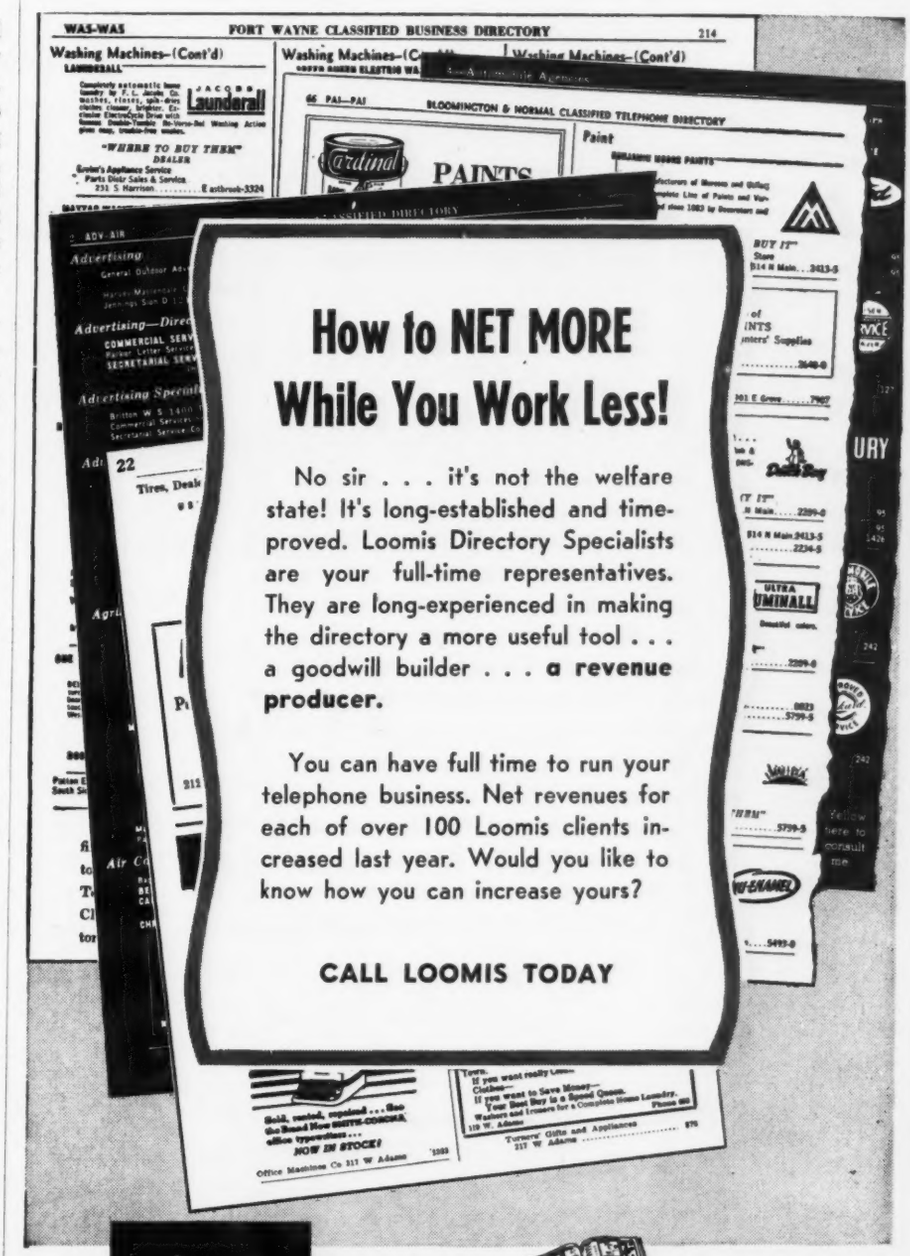
Mr. Miller emphasized that "one way or another the public is going to get what it wants." "They have a right," he said, "to expect that we will give them what they want. And I am sure that in all these new fields of service, no less than in others, we shall be wise in continuing to make the public's wants our opportunity. One of the big reasons for the progress of our industry over the years is that we have worked faithfully to the end that anyone might talk with anyone else, anytime and anywhere. In this new era of communications, the same principle will be every bit as important in bringing new benefits to the public and success to our overall efforts."

Turning to the subject of financing, Mr. Miller gave special emphasis to the work that is being done to meet problems of earnings and pricing, particularly in the case of small companies for which these problems present the greatest difficulties.

"Your Association," he said, through its Committee on Problems of Small Companies, is doing a fine job in analyzing situations and mapping practical programs of action. Likewise the work of the state associations is of utmost importance and deserves the active cooperation and support of all of us.

"This kind of work seems to me particularly important right now. Bear in mind that demand is once again quickening and is on a rising curve. The defense situation is bringing new problems and we must be prepared to meet them. We need plant margins that we do not now have—and we need them all the more because we do not yet know what sort of restrictions may soon be

(*Please turn to page* 46)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No sir . . . it's not the welfare state! It's long-established and time-proved. Loomis Directory Specialists are your full-time representatives. They are long-experienced in making the directory a more useful tool . . . a goodwill builder . . . a revenue producer.
You can have full time to run your telephone business. Net revenues for each of over 100 Loomis clients increased last year. Would you like to know how you can increase yours?
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Another day– another thousand rural telephones

Month after month, the telephone industry has been bringing more and better telephone service to rural America. The Bell System alone has been installing rural telephones at the rate of 1000 every workday.

The facts are summarized in the advertisement on the opposite page, appearing in national farm publications during November.

An advertisement of the
BELL TELEPHONE SYSTEM

HERE'S a crop that keeps growing every month. It's the telephone crop in the rural areas of the Bell System.

Making that crop grow the year round is a big job for telephone men. But they have the skill, experience and tools to do it—and do it right. They're building strong lines, and they're putting in high-grade equipment in rural communities across the country. They've been adding 1000 telephones in these rural areas every workday.

A larger proportion of farms in the U. S. have telephones than in any other country. We're working to increase their number, and we're making excellent progress in providing better service for everyone.

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TROUBLE-FREE

SPLICING SERVICE!

UNIQUE

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Melts 50 lbs. of solder in 10 minutes.
Scraper cleans orifice safely, automatically.

Write Today for Free Booklet

giving full information on Unique's complete line of

TELEPHONE MAINTENANCE EQUIPMENT

UNIQUE MFG. CO., INC., Est. 1921
224 W. Walton St., Chicago 10, Ill.

Bartlett T. Miller, vice president, American Telephone & Telegraph Co., New York City.

and the first essential is to meet these underlying problems of rates earnings and financing as well as we possibly can."

Mr. Miller observed that the telephone industry and the public are living in a period of tension and change. "None of us can be quite sure," he said, "of what is going to happen next. But we all feel in our bones that events of the utmost consequence lie ahead. And the challenge to us who render telephone service is that we shall not only so conduct ourselves, but also to present ourselves to the public we serve, that they will have whole-hearted confidence in our ability, sympathetic understanding of our problems and difficulties, and a friendly respect and liking for us as people. . . .

"There are hard tasks ahead and we shall have to summon all our capacity to meet them. But we have the capacity and the courage to use it . . ."

In his closing remarks, Mr. Miller stated that the communication system in this country is a "mighty bulwark of defense—a system far better and more extensive and more efficient than in the years before World War II."

"We have," he said, "the knowledge and skill and resources to make this system even stouter and stronger and better day by day . . . I am confident, and I know you are confident that with unity of purpose and consistent devotion to the common good, we shall do our full part in helping to maintain the freedom of the United States of America. In so doing, we shall also, I am sure, write a new and important chapter in the bright record of telephone progress."

LOW COST D.C. POWER

RAYTHEON

RECTIFILTER*

(Battery Eliminator)

- **New, more compact . . . requires less inspection and service.**
- **Provides a dependable, low cost source of closely filtered and stabilized D. C. output voltage.**
- **Releases charging cable pairs for revenue producing service.**
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YES! 4 more telephone channels from each physical circuit...

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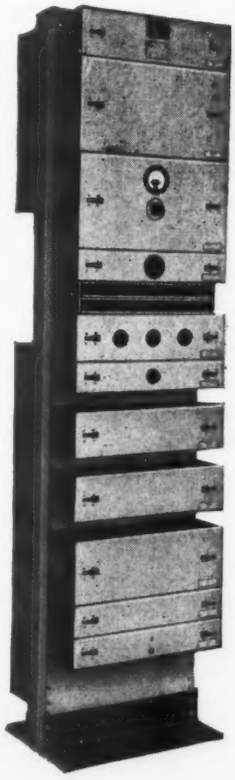

Lenkurt

Type 32C Carrier provides four telephone channels with range up to 250 miles, and may be extended with repeaters.

With a LENKURT Type 32C Carrier System, supplied by Automatic Electric, you can provide additional telephone service simply by making full use of your *existing* physical plant. Get four more voice channels from each of your present physical circuits, without stringing a single wire!

That's *one* advantage of LENKURT Carrier. Here are other advantages:

Easily and quickly installed. LENKURT'S Type 32C System is assembled, wired and tested at the factory. It's shipped ready for installation and operation from either a-c mains supply or office battery.

Can be installed anywhere! It's compactly designed to save valuable footage and fit easily in your present office layout. Mounted on 7-foot self-supporting rack, or any other rack specified, it takes up only 17"x21" of floor space.

Take advantage of these savings which Automatic Electric offers you, and get the most from your present investment. Remember, too, that under most conditions LENKURT carrier circuits actually provide better transmission than the physical circuit. Write for complete information today. Include details of your specific problem and we will rush complete engineering data.

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Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

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News Briefs

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(*Continued from page* 23)

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The telephone industry representatives who conferred with Joint Internal Revenue Taxation Committee Chief Stam were: Harold V. Bozell, president, General Telephone Corp. and 1949-50 U. S. Independent Telephone Association president; Richard A. Lumpkin, president of the Illinois Consolidated Telephone Co., Mattoon, Ill., present USITA Tax Committee chairman, and also a former USITA president; Assistant Comptrollers Harry Gretz and A. L. Stott of the American Telephone & Telegraph Co., representing the Bell System; Thomas A. Boyd, vice president and comptroller of the General Telephone Corp., and a USITA Tax Committee member, and H. N. Sharrow, representing the Gary Group of operating telephone companies.

The meeting of the telephone industry representatives was one of the series of meetings which Mr. Stam and his top staff aides, together with Treasury Department officials, has been staging for the purposes of getting all possible views to assist the House Ways & Means Committee in the drafting of an excess profits tax measure before that Committee starts its hearings on the subject on Nov. 15.

The telephone industry spokesmen, like the NARUC, were understood to have presented a very potent position that there is no reason for subjecting the telephone industry to an excess profits tax because the telephone industry is under continuing regulation.

It was stressed that the telephone industry is in no position to earn excessive profits, even in periods such as the present national defense mobilization emergency with its intense activity, in which communications has such a vital part.

The telephone industry representatives were understood to have explained to the Joint Committee and Treasury Department officials how telephone rates lag behind the movement of other prices in a free economy by at least a year, and often, when regulatory procedures are slow or court reviews are needed, by two or more years.

Unlike other industries and businesses, especially the manufacturing industry, where earnings have increased substantially over the prewar period, the return on capital of the Bell System and the General Telephone System, as representative of the Independent segment of the telephone industry, has been lower than the prewar years, it was pointed out. Citing that the telephone industry has been continuously under federal and state regulation of its rates for many years, the telephone industry spokesmen stressed that earnings have been no more than sufficient to protect the capital investment in the business and to attract new capital needed for expansion.

In the postwar years, with the tremendous construction program of $5 billion for the Bell System, with necessity of raising over $3.5 billion of new caiptal from investors, it was emphasized at the conference that an excess profits tax along the lines of the World War II law would seriously impair, if not destroy, the industry's ability to raise the new capital required to meet its obligations of the national defense effort and the continuing civilian demand for telephone service.

The imposition of an excess profits tax which would not leave reasonable

(*Please turn to page* 50)

A NEW PLASTIC JACKETED CABLE

Offers greatest possible economy through longer life in all types of service. Has maximum flexibility combined with extreme toughness. Highly resistant to abrasion, moisture, acids, cleaning fluids, etc.

This New LENZ product can be used aerially or in ducts. A test cable buried twelve years in the soil still maintained its characteristic properties. Jacket strips easily and cleanly. Individual conductors can be furnished with plastic cotton serve or all textile insulation. Write today for complete information on this latest development that means vital savings in time and money—for you.

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For wire that's built specifically for the job . . . wire that must give long service even when subject to weather extremes, chemical fumes, abrasion, and moisture, get W-B wire from Graybar. Whitney Blake developed these outstanding products as a result of careful study, laboratory research, and field tests. Our long experience in supplying the telephone and railway fields with W-B wire has convinced us that substantial savings in maintenance costs are made through its long life.

A Single Source for Everything Electrical

In addition to wire, Graybar distributes hundreds of other telephone supplies. From fuses to switchboards . . . poles to insulator pins . . . tools to cable terminals . . . all are first quality products of leading manufacturers.

Whatever your construction or maintenance requirements, you can get everything from near-by Graybar. A Graybar Telephone Specialist can help you solve any particularly knotty problems. Your regular Graybar representative is on hand to supply you with information on wiring, signaling, lighting or power installations.

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EXTERIOR BRIDLE, DROP, DISTRIBUTING WIRE — *Use W-B Teleprene.* Jacketed with a flame-resistant, tire-tread type Neoprene jacket, Teleprene out-performs other similar covered wires. Teleprene conductors are "Teleplated." This method of bonding the copper to the jacket gives enduring adhesion equal to the tensile strength of the conductor itself. Temperature extremes do not affect the strength or flexibility of Teleprene. A ridged tracer is molded into the jacket to assure quick, positive polarity identification.

JACKETED INSIDE WIRE — *Use W-B Plastite.* This multiconductor distribution wire is made to meet all problems of drawing into building ducts yet is also attractive for exposed interior installation. It is available in 2, 3, or 4 conductors in #22 soft annealed bare copper insulated with a 0.013" minimum wall thickness of Plastite. Diameter over ivory or brown Plastite jacket is approximately 0.167" for 2 and 3 conductor and 0.182" for 4 conductor. Can be used with stapling gun for fast, economical installation.

UNDERGROUND INSTALLATIONS — *Use W-B Teleseal.* A special water-resistant jacket for low-voltage installations. For direct burial underground even where water or dampness is ordinarily a problem. Teleseal's hard copper conductors are coated with lead and brass, by the Teleplate process to give utmost corrosion resistance and lasting insulation adhesion. The tough Neoprene jacket bears a double-ridged pole tracer. Teleseal is stable in operation even after long periods under water. The low moisture absorbing insulation results in low transmission losses at telephone frequencies.

Everything in Telephone Supplies
Via GraybaR

IN OVER 100 PRINCIPAL CITIES

STATIC POWER DISCHARGES ARE DANGEROUS!

Open Wire Leads That Are Exposed To Power Distribution Circuits Should Be Protected

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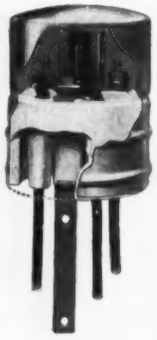

A RELIABLE 402RR CROSSARM ARRESTOR is a NECESSITY

Self Cleaning Saw Tooth Discharge Blocks Will Drain the Line of High Voltage Static Electricity Without Leaving an Accidental Ground on the Line.

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– BE SAFE –

Specify Extra Protection for Open Wire Circuits on Jointly Used Poles

402RR—Crossarm Arrestor & Cover ..... $1.25 ea.

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earnings to the telephone industry after all taxes, would in effect take regulation out of the hands of the authorized regulatory commissions, and would substitute an arbitrary and discriminatory formula for the well-established pattern of regulation which has been in effect for many years, it was said. While the telephone industry representatives expressed their recognition of the current emergency's necessity for large federal expenditures for some time to come and the need for increased taxes, the telephone industry group highlighted in its presentation that there are no possibilities for excessive profits in the telephone industry of the type which an excess profits tax law would be seeking to take away.

In addition to advocating complete exemption of the telephone industry, the telephone spokesmen presented the Joint Committee and Treasury Department group with six recommendations of methods of levying an excess profits tax which would make the burden less severe upon the industry than under the proposals which had been previously advanced by proponents of this tax.

Meanwhile, because of the sharp opposition to a World War II-type of excess profits tax, some thinking in Congress is developing toward the shelving of that method of levy and the substitution of a further boost in the corporation income tax rate upwards of 50%. Senator Ralph Flanders (R., Vt.) pointed out recently that an excess profits levy would result in discrimination against companies which have had "rough sledding" during the postwar years, but would give an advantage to many large manufacturers and other concerns that have had record peacetime profits.

Ned R. Powley Retires From Pacific T. & T.

Having served more than 42 years with the Bell System and having directed one of the two largest associated Bell companies during its era of greatest expansion, Ned R. Powley, Chairman of the Board of Directors of the Pacific Telephone & Telegraph Co. for the past three years, and previously president of the company for 12 years, retired from active service Oct. 31 under the 65-year age retirement plan of the Bell System.

Mr. Powley started his telephone career, as have virtually all top Bell System executives, in a "bottom rung" position as an accounting clerk with the American Telephone & Telegraph Co. in Boston, the A. T. & T.'s previous headquarters. He took this position at $50 a month following his graduation from Amherst College.

The retiring Pacific Telephone & Telegraph Co. Board Charman, who will continue as a Director of the company, came to California in 1912 and quickly went up in the Pacific Telephone & Telegraph Co.'s organization until he became president in 1935. He had served successively with Pacific Tel. & Tel. as rate engineer, commercial superintendent, general manager, vice president and first vice president.

REA Allocates $316,000 To Wisconsin Independent

The Cream Valley Telephone Co., Hawkins, Wis. has received notice from the Rural Electrification Administration that an allocation in the amount of $136,000 has been approved for improvement and expansion of telephone facilities in the Hawkins, Kennan and Catawba area. The REA Engineering Division has estimated that improvements in telephone service in the area will cost $161,000, of which amount the REA will furnish $136,000 and the telephone company must furnish $25,000 to be raised by the sale of stock.

The *Hawkins (Wisc.) Chronicle* reports that the allocation for a loan is made contingent upon the following conditions that must be met by the company before REA will advance any loan funds:

(1) In addition to the $25,000 to be raised by the sale of stock, the company must submit evidence of the peoples' desire for better telephone service by obtaining as many signed applications for service as possible, but in no case less than 250, or over a 100% increase in the number now receiving service (this means all individuals who desire telephone service must sign a new application blank); (2) the company must submit other data such as maps and engineering specifications, for the approval of REA; and (3) they must also obtain approval and permission from the Wisconsin Public Service Commission to improve and provide better telephone service to the people of the community. These and other provisions stipulated by REA must be met before a loan contract is signed and REA advances any money to the company to start the project.

The company plans to start immediately to fulfill the requirements outlined by REA so that funds may be advanced to purchase new material.

Strange "goings-on"?

TO THE PUBLIC, what goes on down a manhole, in a central office, in telephone laboratories and factories, is pretty much a mystery. But the sum of these "goings-on"—the best telephone service in the world—is something American people know so well that they take it as a matter of course. Western Electric's major contribution toward this satisfactory result is producing good equipment, the kind that makes possible good telephone service.

Western Electric

TELEPHONE APPARATUS AND CABLE

Make Every Gas Station A "PAY" Station . . . .

with AUTELCO PAYSTATIONS

Autelco Paystations are available in the familiar black (as shown) or in the new "hammered" gray finish, optional at slight additional cost.

Every gasoline filling station in your territory is a source of potential extra telephone revenue. You can get this added income by installing paystations wherever these opportunities occur—on the highways, in business districts or in neighboring areas. There is an Autelco Paystation to meet every requirement, including newly developed paystations for ten-cent service. Remember, paystations soon pay out their initial cost. Thereafter, for every paystation location you have secured, you are assured steady, constant extra income. Get the details on the entire line of Autelco Paystations; ask for Catalog No. 4078A.

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(Continued from page 32)

(1) Locate the protector as near as possible to its ground connection to a cold water pipe. At the same time, the protector location should result in as short a run of drop wire inside and outside the residence as possible.

(2) If possible, select a location for the protector that will provide natural lighting. Avoid placing the protector where it will interfere with the raising of a window sash.

(3) Mount the protector in a location where it will be readily accessible for maintenance purposes. Do not locate the protector within a maze of pipes or electric wiring, but install it in a clear space and not less than one foot from electric, water, or gas facilities.

(4) Do not mount the protector on its side, as this position may increase the tendency of carbon particles to accumulate in the air gap between the protector blocks, causing grounds or leakage to ground.

(5) Use a backboard to mount the protector on the foundation wall, or on a covered ceiling.

(6) If the protector fuses are provided with vents (fiber tube type), turn the vent slots to face the back of the protector, to reduce the hazard of flying hot metal in case the fuses blow. This precaution is not necessary in the case of ceramic fuses, which have no vent slots.

Methods of fastening the protectors or backboards are suggested below:

(a) On wood surfaces or on backboards, use two 1"½ x #8 RH wood screws.

(b) On plaster and lath ceilings or on composition board coverings, use a backboard attached with four 2½" x #8 RH wood screws, with at least two of the screws in a floor joist, if possible.

(c) On stone or brick walls, use backboard fastened with two 2" x #8 RH wood screws and 1½" x #6-8 screw anchors. Locate the two screws diagonally opposite each other.

(d) On hollow tile walls, use backboard fastened with two 3/16" x 4" toggle bolts in opposite corners.

Making Ground Connections at Subscriber's Station

A GOOD GROUND connection is an essential factor in station protection. Poor grounds have been the cause of mysterious failures of protectors to prevent damage to subscriber's property and to the telephone wires, particularly in the case of lightning discharges. In addition, a high resistance ground can cause a dangerously high voltage to appear across a telephone line when a cross with a power line occurs. This high resistance may limit the ground current sufficiently to prevent or delay operation of the power circuit breakers, causing the voltage to remain on the telephone line.

If an inside protector installation is involved, the ground connection is almost always made to a cold water pipe. Since a farm residence often does not have a connection to a public water system, a ground rod should be installed for the ground connection. If poor soil condition is likely to result in a high resistance ground, the ground wire may be run to a steel well casing and connected thereon. In such cases, it is always preferable to install an outside protector to avoid running the ground wire into the house.

No. 14 BRC or plastic coated copper wire is used for grounding station protectors. Actually, No. 18 is the smallest size of copper wire permitted for these installations, but the No. 14 size provides greater mechanical strength than the smaller gauge wire. The wire should run directly to its ground connection with no sharp turns (less than 90 degrees) in the wire run. Poultry wire staples are satisfactory for attaching the wire on soft wood. For other surfaces ground wire clamps are used, attached with #8 RH wood screws (galvanized for outside installations or blued for inside installations). Sizes are ¾" for hardwood or wood shingle siding, 1" for composition shingle or brick roll siding (drill clearance holes first), and 1½" for plaster and wood lath or composition board, with attachment made to studdings or joists behind the covering. On brick or stone, ¾" x #8 RH galvanized wood screws and ¾" x #6-8 lead screw anchors are utilized. In running

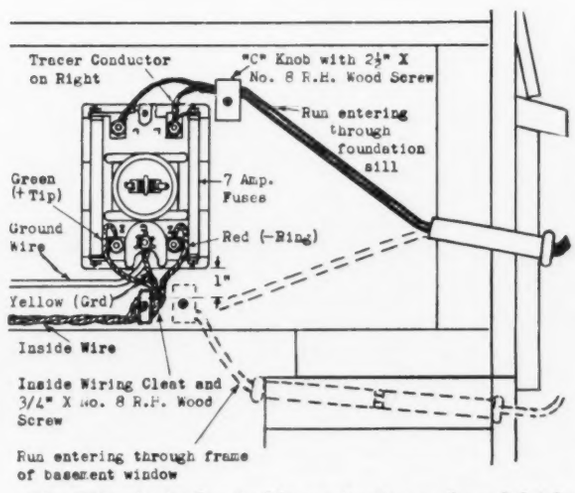
Tracer Conductor on Right
"C" Knob with 2½" X No. 8 R.H. Wood Screw
Run entering through foundation sill
Green (+ Tip)
7 Amp. Fuses
Ground Wire
Red (-Ring)
1"
Yellow (Grd)
Inside Wire
Inside Wiring Cleat and 3/4" X No. 8 R.H. Wood Screw
Run entering through frame of basement window

Fig. 121—Installing inside protector on floor joist in basement.

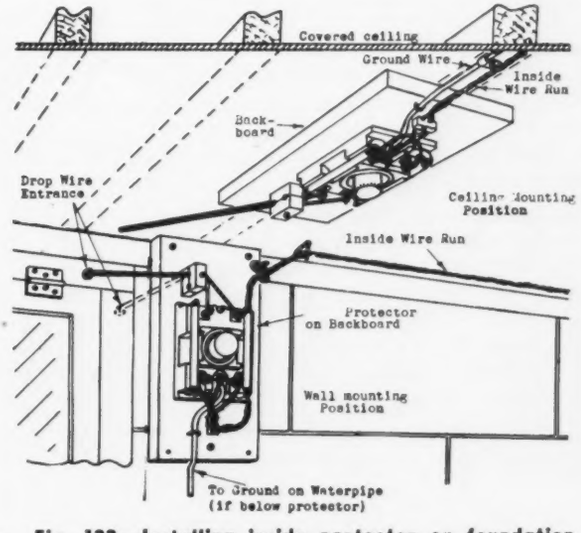

Fig. 122—Installing inside protector on foundation wall or on ceiling covering in basement.

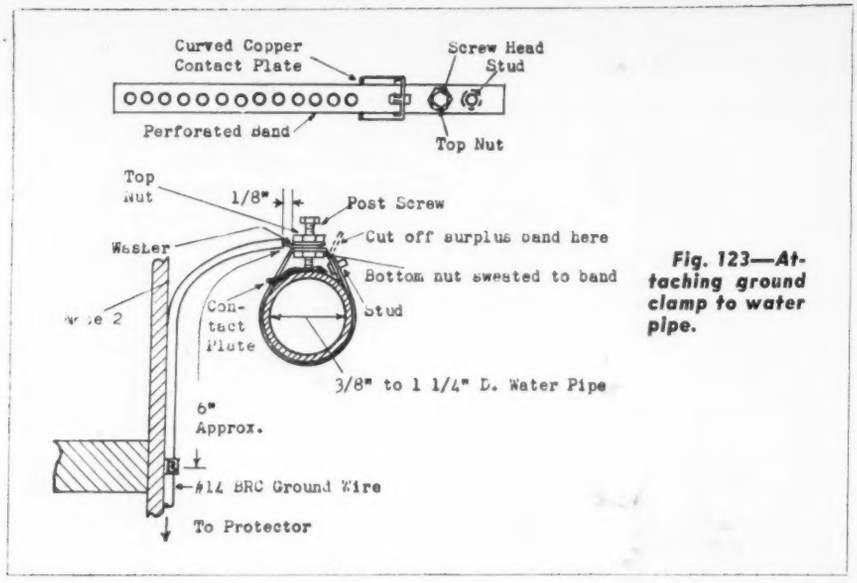

Fig. 123—Attaching ground clamp to water pipe.

ground wire from joist to joist in a basement run, the run should be placed within 3 inches of a paralleling wall to protect the run, and attached to every joist.

The ground wire is connected to a cold water pipe by means of a ground clamp as shown in *Figure* 123. The water pipe should be thoroughly cleaned with a strip of emery cloth to assure a bright and clean surface for the connection. Paint or other encrusted matter should be scraped off before using the emery cloth. In connecting the ground wire to the clamp, sufficient slack should be provided in the wire at the connection to prevent breakage of the wire. The wire should be given a gradual curve at this point and should not be coiled or bent sharply at less than 90 degrees.

When a ground rod is to be installed, the recommended procedure is illustrated in *Figure* 124. Copperweld ground rods ⅜" or ½" in diameter and 5'0" or 6'0" in length are standard with most telephone companies. Satisfactory results, however have been obtained by using ¼" dia. x 5'0" Copperweld rods when soil conditions are favorable to good ground conductivity.

The ground rod should be installed in moist soil, whenever possible, and at not less than 1 foot from the foundation wall in order to avoid buried debris and the less compacted soil usually found close to the wall. The top of the rod should be 3 inches below the surface of the ground. In certain locations, hardpan or other similar obstructions may interfere with installing the rod to the full depth. In this case, the rod may be installed at an angle so as to place the rod entirely with the soil covering over the obstruction. The rod should never be bent at an angle or left with the top protruding out of the ground.

The puddling method is a familiar procedure to many plant workers for forcing a ground rod into the earth. A little water is poured in the trench at the location where the rod is to enter the ground. The point of the rod is then pushed into the ground as far as it will go. Rotating the rod at this time will allow the water to run into the hole and soften the soil sufficiently to enable the rod

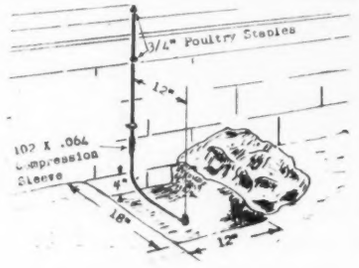

Fig. 124—Method of installing a ground rod.

to be "pumped" into the ground. The rod is rotated from time to time and more water is poured into the hole as needed until the top of the rod is below the surface of the ground.

The tail of the ground rod, which consists of a 24-inch length of 104 copper wire soldered to the end of the rod, is laid along the bottom of the trench and turned gradually upwards to meet the ground wire for splicing as indicated in *Figure* 124. The splice should be in a location a few inches above the surface of the ground. After splicing, the dirt is replaced in the trench and thoroughly tramped down.—(*To Be Continued.*)

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Designed for use in P.B.X. installations, in small unattended exchanges and for the floor distribution of cables in factories, offices and stores where screw connections for drop wires are desired—with *economy*. Wooden base; enameled metal cover. Solder clips on Cable side; screw connections on drop side. Furnished in 13 and 26 pair capacity.

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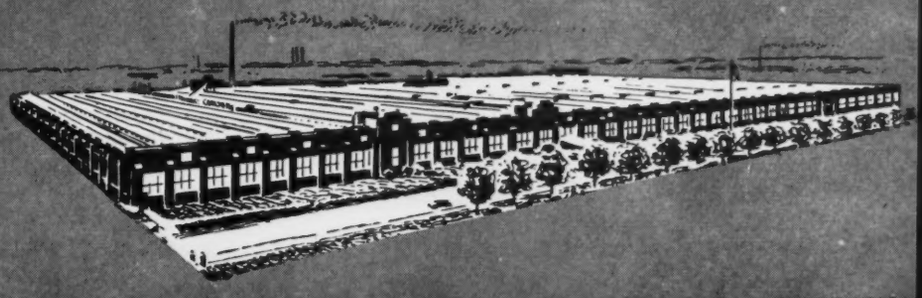

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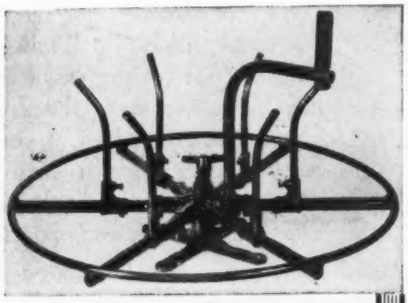

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USITA Accounting Conference Features Discussions On New Methods & Systems

BRINGING OUT several times that the depreciation accounting policies and practices of the telephone industry have been "healthy" in contrast to the previous history of depreciation in the electric power and gas fields, Asel R. Colbert, Chief of Accounts & Finance Department, Wisconsin Public Service Commission, presented not only a significant analysis of present trends in depreciation thinking by state commissions but also somewhat of a "preview" of his committee's report to the November convention of the NARUC at Phoenix. R. D. Buzzard, Auditor of the Pennsylvania Telephone Corp. of Erie, Pa., chairman of the USITA Accounting Committee, presided at the Oct. 9 accounting conference and gave a brief summation of the 1950 activities of his committee.

R. D. Buzzard, Auditor of the Pennsylvania Telephone Corp., Erie, Pa.

Capitalization of Overheads

C. D. McDANIEL of Arthur Anderson & Co., one of the nation's leading auditing firms, urged Independent telephone companies in the capitalization of overheads applicable to construction to prepare carefully substantiation of overhead costs with working papers and adequate proof for presentation to regulatory commissions in fairness to their stockholders. He stressed that by capitalizing the actual overhead costs the telephone companies will not play into the hands of the "socialist idealists" who if a portion of overhead costs of construction is charged to expense, contend the customers have then paid for a portion of the property and having once paid for it they cannot be charged for use. This was the position, he noted, of the Federal Power Commission in the Hugoton natural gas case against the Panhandle Eastern Pipeline Co.

"I am not advocating the capitalization of one dollar that is not a proper cost of property," Mr. McDaniel stated, "but I do think that in order to obtain a fair return for the equity owners of a telephone company it is imperative that all the costs of constructed plant be capitalized."

Utility Depreciation

WISCONSIN Commission Accounts & Finance Chief Colbert brought out that telephone utilities, even with the unprecedented growth which has doubled plant investment during the past 10 years, have maintained the ratio of depreciation reserve to plant in the same healthy condition as before World War II. The telephone companies have long followed the straight-line method, he related, and since the NARUC in 1937 adopted new systems of accounts for electric gas and water utilities the electric and other utilities are increasingly using the straight-line method. Another method currently being considered which may come into more general use, Mr. Colbert cited, is the remaining life method.

The NARUC depreciation committee report to the Phoenix convention in November, Mr. Colbert told the USITA accounting conference, will explain the remaining life method and give examples of various ways in which it can be applied. "Perhaps the simplest application," he said, "is to first estimate the depreciation reserve requirement applicable to property and compute the difference between such requirement and the actual depreciation reserve. This difference can then be spread over the remaining life and added to, or deducted from, as the case may be, the usual total straight-life accruals. Thus, the total annual depreciation would be the sum of the regular accrual and the amount required to bring the depreciation reserve in harmony with depreciation

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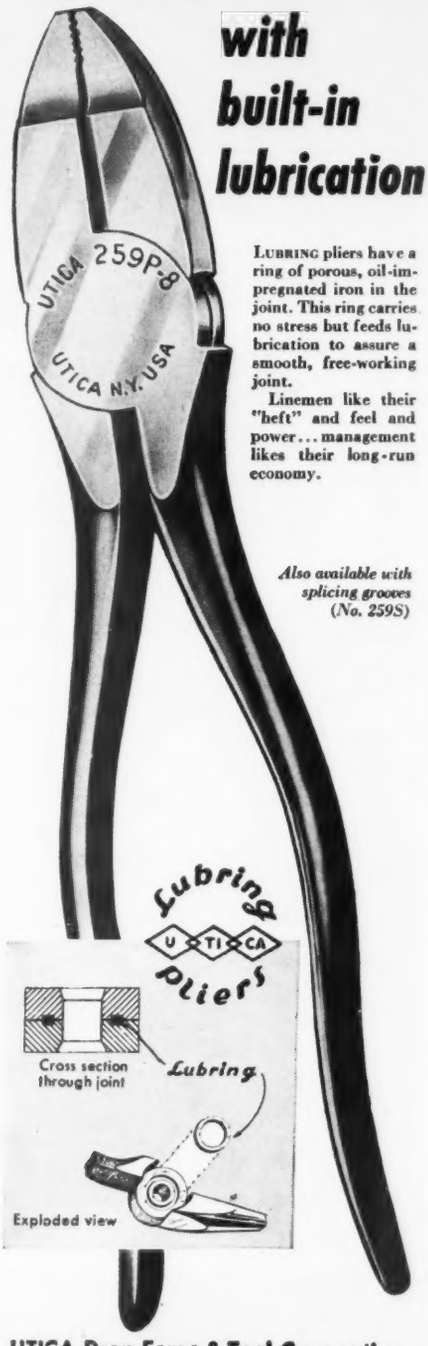

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H. Graham Smith, president, Stockholders' Relations, Inc., New York City.

reserve requirements during the remaining life of the plant." Mr. Colbert added that there has been a marked improvement in recent years in the techniques of estimating service life upon which depreciation rates are based and the procedures by the Bell System are available, while his NARUC depreciation committee has analyzed and explained estimating techniques in its reports.

After explaining how the Wisconsin commission has formulated depreciation policies for utilities in that state, together with summations of the Community Telephone Co. and the LaCrosse Telephone Corp. cases, Mr. Colbert stated that for utilities generally there has been definite improvement in the annual provisions for depreciation expense, in the status of depreciation reserves and in the techniques of estimating depreciation. He said experience has proved the Wisconsin depreciation statute is sound and benefits both the customer and the utilities by saving special depreciation investigations.

Annual Reports

H. GRAHAM SMITH, president of Stockholders Relations Inc., urged the Independent telephone companies which are larger and have a substantial list of stockholders to prepare adequate annual reports both for its stockholder and employee "public" and the regulatory commissions. The importance, too, of the community public, he said, cannot be overemphasized because the latter is the "bread and butter" of the telephone company. Mr. Smith pointed out that the Pennsylvania Telephone Corp. had been awarded in 1948 the "Oscar" in the annual report competition by the Financial World.

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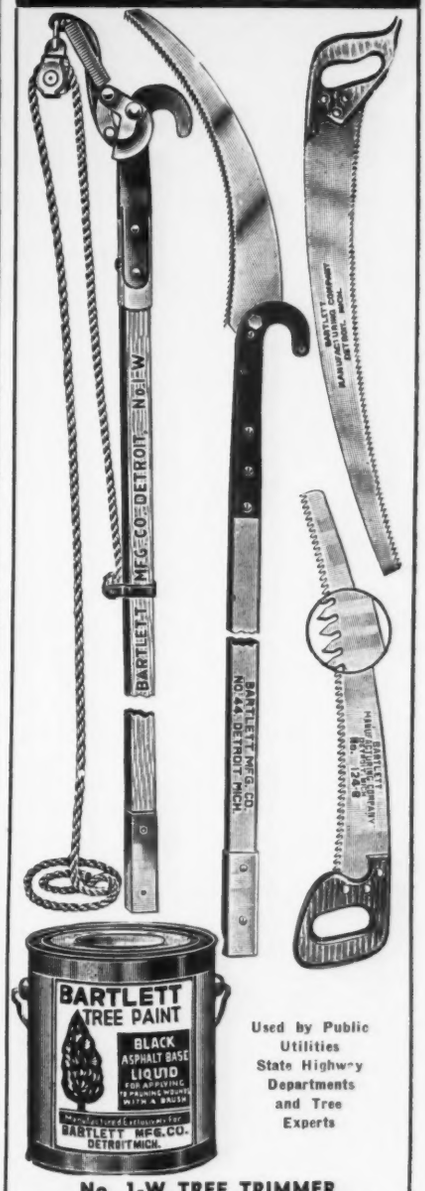
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QUESTIONS and ANSWERS

Edited By

Jay G. Mitchell

In This Issue, Mr. Mitchell answers questions pertaining to—(1) Connections for three cord hand telephone sets on magneto wall telephones, (2) Characteristics of local battery induction coils when defective, and (3) Loading coils on multi-party rural line circuits.

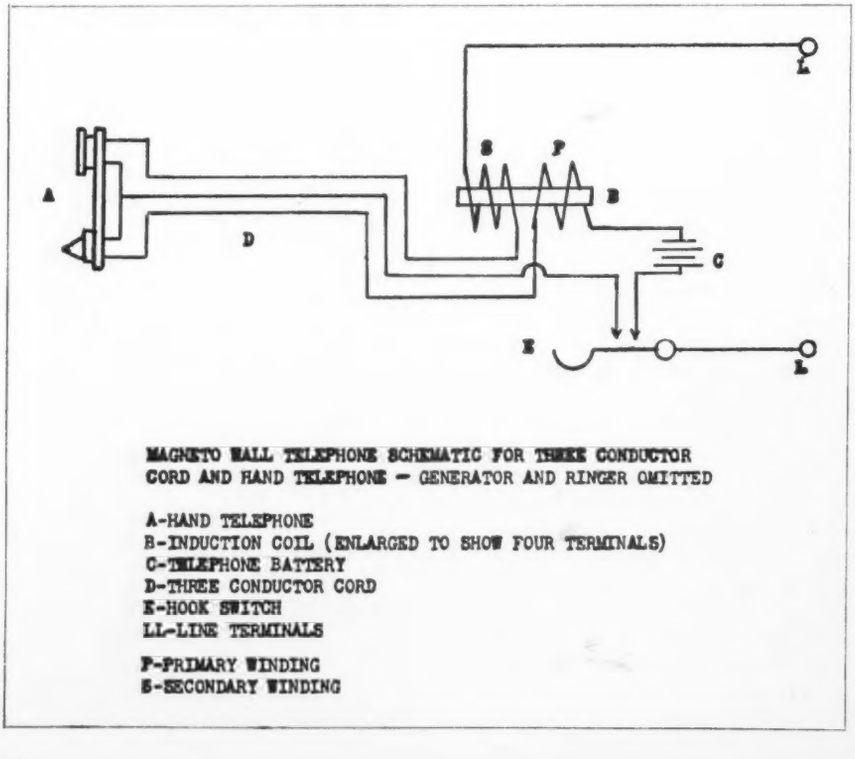
Question:—I was reading Mr. Mitchell's answer to the question concerning hand sets being connected to magneto wall telephones. As I have a hand set with three conductor cord and also have three connections to the induction coil I have noticed that when I take off one battery connection the line noise is much louder. My hand set is a Western Electric. I would like to have a sketch or blue print showing the proper hook-up. Stamped and directed enveloped is enclosed for your use in making reply. Thank you.

Answer:—The purpose of this inquiry is not entirely clear as the schematic circuit for a hand set connected to a wall magneto telephone using a three conductor cord was shown in the September issue of TELEPHONE ENGINEER AND MANAGEMENT on page 56. This is being repeated as a matter of information in case the September issue is not available.

While there are three connections to the induction coil, that is three punchings, in most magneto wall telephones it will be found that one of these three punchings has two wires from the coil winding soldered to it. These two wires must be separated and this necessitates, of course, the installation of another punching to which one of the two may be attached and soldered. In some cases this connection between the two windings of the induction coil is made inside the coil and is not accessible without removing the outside covering of the coil. Obviously this is a delicate operation and requires the most careful attention.

The increase in the volume of the

(*Please turn to page* 60)



MAGNETO WALL TELEPHONE SCHEMATIC FOR THREE CONDUCTOR CORD AND HAND TELEPHONE — GENERATOR AND RINGER OMITTED

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B-INDUCTION COIL (ENLARGED TO SHOW FOUR TERMINALS)
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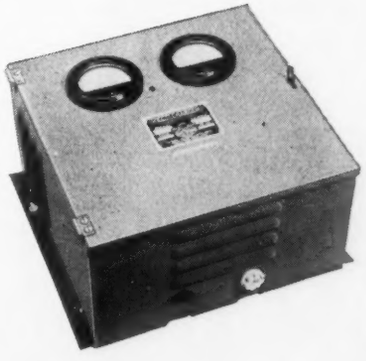
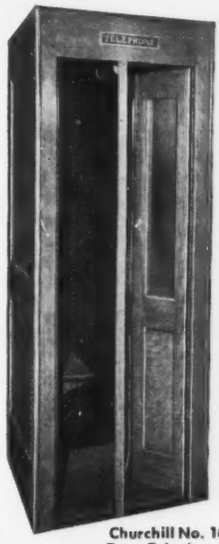


*Reg. U. S. Pat. Off.



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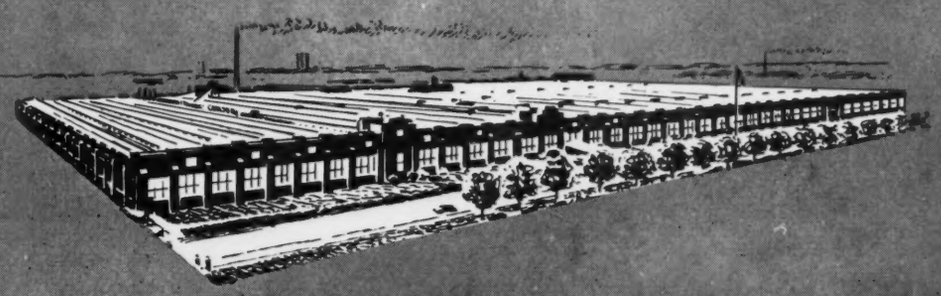

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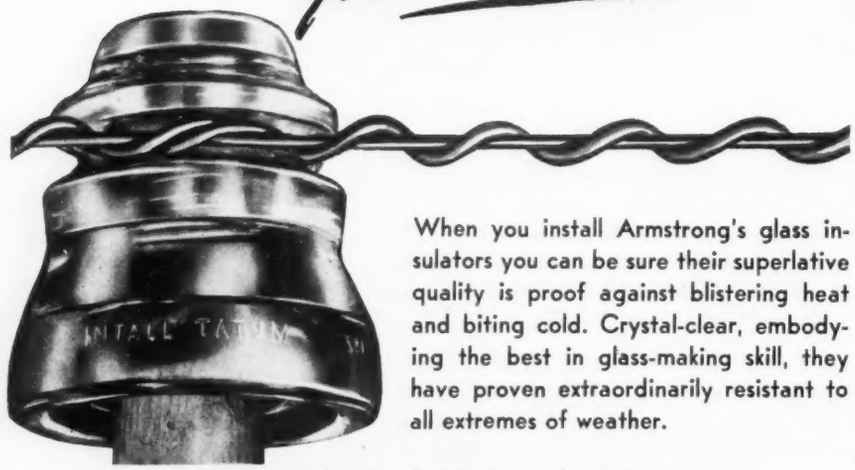

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line noise when one of the battery connections is removed may be due to a number of conditions but it is my guess that when the induction coil is properly connected to the other parts of the equipment, as indicated in the sketch, this effect will disappear.

Question:—I am head lineman and maintenance man for our telephone company and enjoy very much reading the QUESTION AND ANSWER *columns as well as the many other interesting features in both magazines* (TELEPHONE ENGINEER AND MANAGEMENT *and* FORTNIGHTLY TELEPHONE ENGINEER).

There are two questions in particular I would like to ask you. First, the company has several different makes of telephones both new and old. I noticed that in the newer telephones the induction coils have around 2 ohms in the primary winding and 20 ohms in the secondary. Most of the older models around ½ ohm in the primary winding and 50 to 75 ohms in the secondary. I am inclined to believe that an induction coil with only ½ ohm winding in the primary and 50 ohms in the secondary would not give as good transmission as a coil that has 1.5 or 2 ohms primary and 20 ohms secondary. Would it be advisable to replace the older induction coil? I am referring to wall type magneto wood box telephones (KELLOGG, LEICH and STROMBERG).

The next question is concerning loading coils. Is it advisable to install loading coils on party lines that are around 6 miles long and have connected 8 to 10 telephones? The lines are metallic with a branch on some lines that is a ground return (or single wire) connected up through a Kellogg No. 21 A repeating coil. I have read advertisements in your magazine concerning loading coils (for instance army surplus coil c-114) and wonder if it would be worth while to install loading coils on the longest lines. The transmission and reception is fairly good but could be better.

I am enclosing a stamped and directed envelope for your reply.

Answer:—The efficiency, as to telephonic transmission, cannot be determined on a consideration of the resistance of the induction coil windings alone. Many other factors must be included in any such study and some of these factors are the characteristics of the transmitter with which the induction coil is connected, the number of turns in the primary and secondary windings, the voltage and current producing capacity of

the associated power supply (in magneto telephones the local batteries), the character of the telephone circuit, the presence in the telephone circuit of ring-by condensers and the high, medium or poor maintenance of the telephone and other equipment, such as the receiver cord, entering into the transmission circuit. By the expression "character of the telephone circuit" is meant such factors as side-tone or anti-side-tone or booster arrangement, series telephone circuit (old time telephones operating in series in the line), and the other conditions that affect transmission mentioned above. In general it is recommended that when an induction coil is found to be defective or damaged otherwise and must be replaced that the replacing coil be ordered from the manufacturer of the telephone instrument in which the coil is to be replaced. This is because each manufacturer, currently, coordinates the several items of equipment installed in his telephones so that the combined effect of the whole is the best that can be realized. In all probability items of equipment which are purchased now will be more efficient than corresponding items produced in the past but it is preferable, if possible, to replace items of equipment with newer coresponding items *made by the same factory* that produced the equipment being replaced. Of course local battery induction coils, for illustration, must be replaced by new local battery coils and common battery induction coils must likewise be replaced by common battery coils. In any case the replacement of a defective induction coil should only be made with the wiring connections exactly the same as those for the telephone in which the original coil was installed. Induction coils may be defective because of short circuited or open portions of the windings or broken connections to terminal punchings.

In the case of old telephone equipment when the outgoing transmission is unsatifactory it is always in order to suspect the induction coil when all the more obvious causes of poor transmission, such as the receiver cord, the batteries, the lightning arrester of the protector, the cable box fuses and lightning arresters, the drop, the leakage through heavy tree growth, the ground rod (in the case of grounded line circuits) and all joints and wiring connections have been checked. If the induction coil windings are found, after such a check, to show a lower resistance than other induction coils *of the same make and type* it may be assumed that they must be replaced.

The installation of loading coils on multi-party rural telephone lines cannot, in general, be recommended. The C-114-A loading coils (army surplus) have an inductance of 88 millihenrys, a direct current resistance of about 8.4 ohms and weigh about 3 pounds. They are provided with binding posts and are enclosed in a waterproof phenol case. The use of this coil on telephone circuits requires the most careful circuit design and effective maintenance.

R. J. Schafer Heads Michigan Association

THE 15TH ANNUAL convention of the Michigan Independent Telephone Association, held on September 14 and 15 at the Hotel Olds in Lansing, was one of the best in the history of the organization. The

(*Please turn to page* 64)

Left to Right:—Hon. S. L. Marshall, of the Michigan Public Service Commission; John A. Greene, president, Michigan Bell Telephone Co.; John McCarthy, chairman, Michigan Public Service Commission, and Roy E. Putnam, Michigan Association president.

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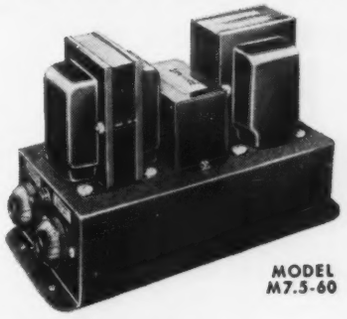

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For Details See Bulletins 155 and 159

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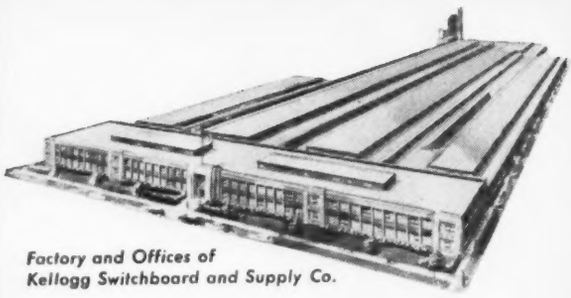

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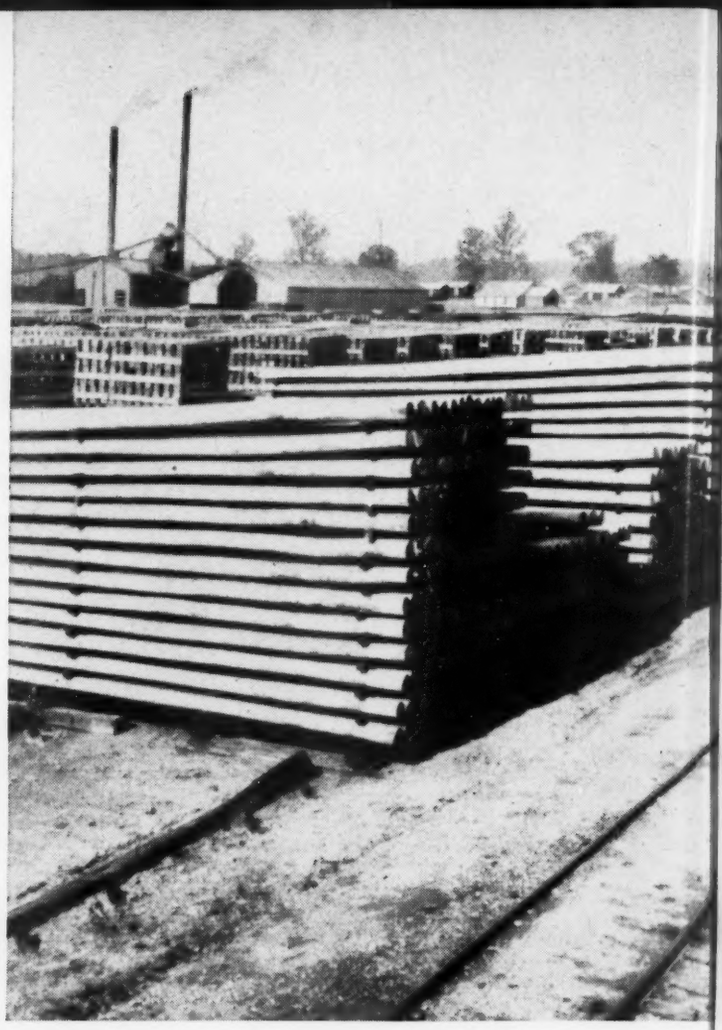

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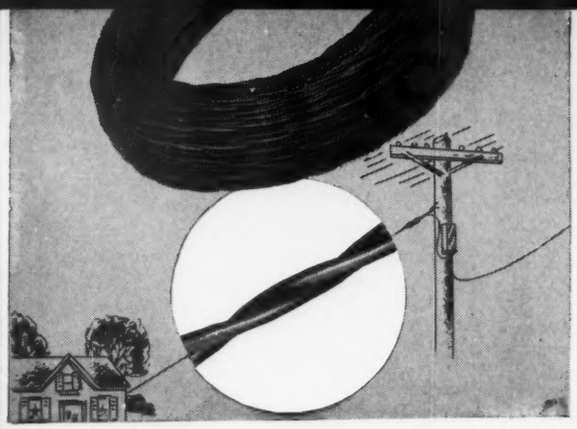
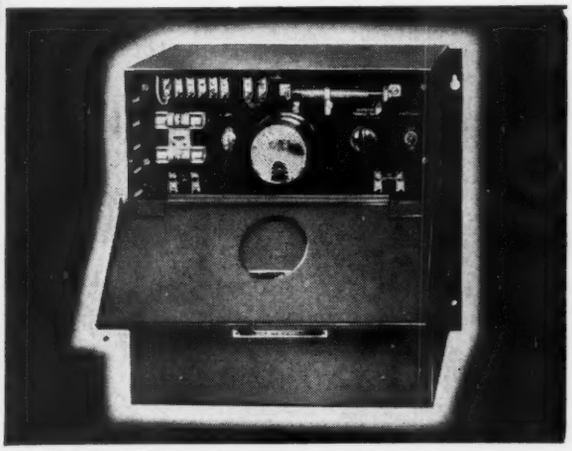
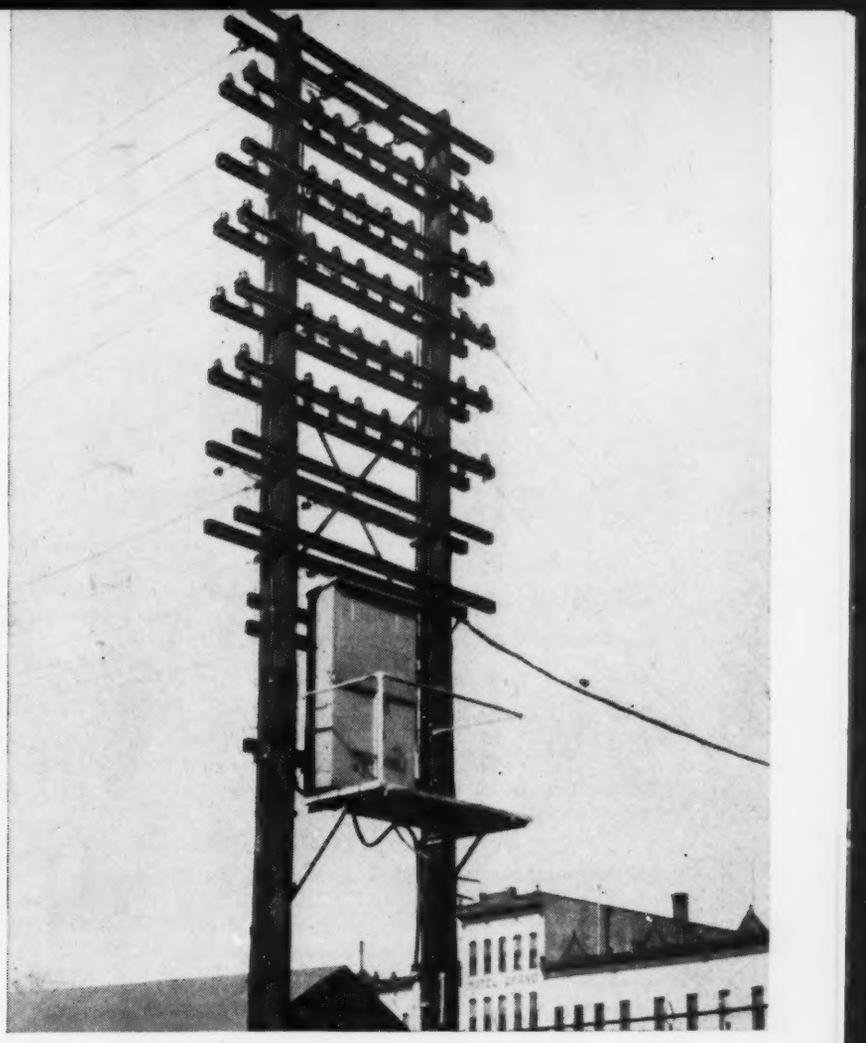


Drop Wire Lasts 30% Longer! GENERAL INSULATED WIRE WORKS Bronze Drop Wire lasts longer because it's drawn of solid, non-corrosive bronze and covered with hard-wearing Neoprene insulation. Flexible and easy to handle. Also available in Copperweld.

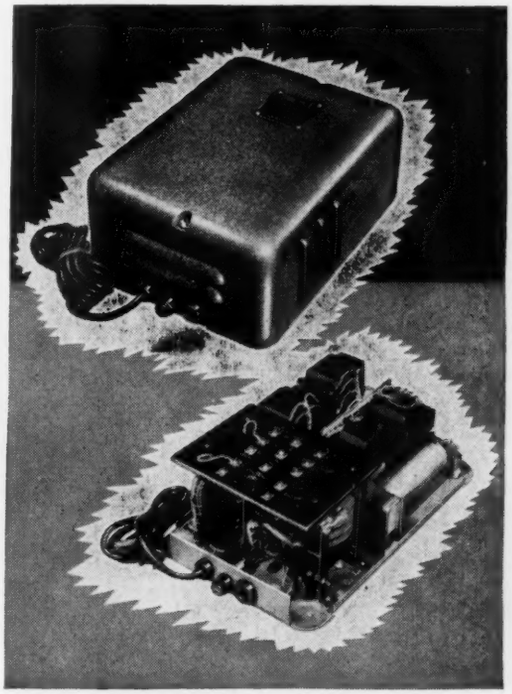


Tip-Top Shape! Automatic battery charging ends troubles caused by over- or under-charging. Keeps storage batteries in tip-top shape—fully charged at all times. RectiChargeR automatic charging prolongs battery life. That's why this RAYTHEON MFG. CO. unit is so popular everywhere!

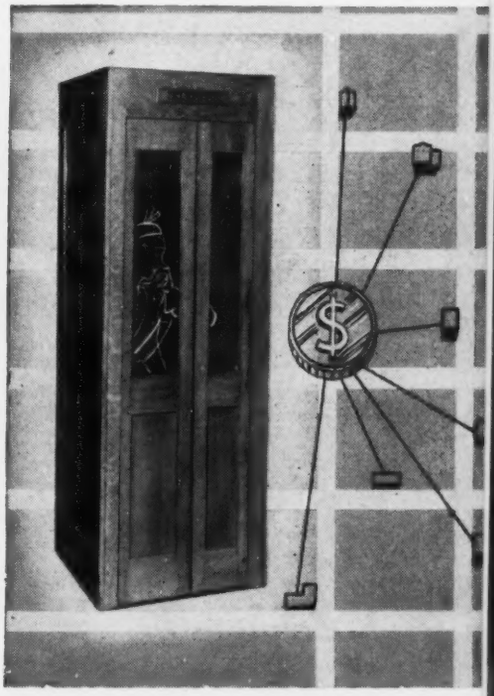


Economy in Overhead Construction is assured when crossarms manufactured by THE CONTINENTAL CROSS-ARM COMPANY, INC., are a part of your wire and pole installation . . . they represent the wisest investment any telephone company can make. Crossarms are made of fully-seasoned American woods—built to sound standards of dependability.

ve Three Ways . . . on materials, man-hours, d maintenance with INDIANA STEEL & IRE CO'S Crapo HTL-85 and HTL-135 Line ire. Galvanized by the famous Crapo Galvan-ng Process, it is protected with a heavy, ctile, tightly-adherent coating of zinc.



12 New Models—5 Cabinet Sizes comprise this new line of packaged power Sub-Cycle "RT-Units" for P.B.X. and small switchboards. Both ringing and talking power are combined in one cabinet. Made by LORAIN PRODUCTS CORPORATION. Wire for Bulletin 159.



Make Every Pay Station a Paying Location! Churchill booths attract extra patronage everywhere. That's because they give the public privacy, roominess and comfort. Above is CHURCHILL CABINET CO.'s No. 100 booth, with door-controlled light switch and ventilator.

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"HOT TIP" ON SOLDERING

USE THE CHISEL TIPPED "American Beauty"

"American Beauty" soldering irons make quick permanent connections. Service crews prefer them for convenience and ease of handling. Available with a choice of five tips, but most workmen prefer the 1/2" chisel tip as illustrated.

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Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
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FROST EARTH AUGER*

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It will drill through flint-hard Frozen Earth, Shale, Sandstone, Gumbo, Clay, Gravel, and Dry Hard Packs.

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HENNING ELECTRIC MOTOR COMPANY

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FARGO, NORTH DAKOTA

program was outstanding and the large group of Independent people who attended found it helpful and constructive.

At a meeting of the Board of Directors on September 15, the following were elected to office: Russell J. Schafer, Pinconning, as president; Jas. F. Van de Vusse, Owosso, vice president; P. E. Taylor, Pickford, director; K. B. Sage, Central Lake, director; Chas. W. Cheeney, Chesaning, director, and John Fox, Waldron, director.

Other directors whose terms did not expire October 1, 1950 are: L. W. Reynolds, Ontonagon; R. E. Putnam, Muskegon, and W. P. Hackett, Orleans. Jane McNally, Lansing, was reelected treasurer, while F. B. Twigg, Lansing was renamed secretary.

Rates

SPEAKING AT the first general session on September 14, Frank Twigg, association secretary, stated that during the year tax matters had involved four situations which were resolved to the satisfaction of the Tax bodies, and comfort of the companies involved.

"Perhaps," he said "the greatest amount of time was consumed in two very important phases of the business—(1) *books*, which conform to regulations covering a Uniform System of Accounting, and (2) boundary disputes and questions. There were no less than seven such matters in one month, alone.

"In nearly every case, the dispute arose over the fact that one of the disputants has never taken the trouble to file maps with the Commission, and in no few cases they have even failed to secure an approved Certificate of Convenience and Necessity. How in the world, they expect to keep their operation on an even keel, under those conditions, is rather hard to understand. Certainly, if one were looking for proof of Mr. Bell's philosophy of ' . . . *feeling safe with a person*,' they must find it in the demonstrated willingness of our regulatory body to 'help' even in those cases. Nevertheless, we must 'now' set about putting our houses in order. We must demonstrate our faith in ourselves, the principles of our business, faith in our fellowman, and we *must* demonstrate our obligations to the public by doing everything necessary to secure their faith in us."

Michigan Association President R. E. Putnam, Lansing, emphasized in his address that adequate rates, like adequate books are important.

"Practically every president before

R. J. Schafer, Piconning, Mich., new president of the Michigan Association.

me," he said, "and many others speaking from this platform have urged the delegates to this convention to seek adequate and compensable rates for their service. Apparently this advice did not fall on deaf ears because a recent study of the orders issued by the Michigan Public Service Commission indicates that many of you have applied for and received authority to increase rates in the last year or so."

J. F. Van de Vusse, general manager, Union Telephone Co., Owosso, served as moderator at the Open Forum on September 14. Mr. Van de Vusse introduced Geo. W. Loomis, attorney, of Lansing; Lyman Jennings, president, Public Service Co., Montrose, J. W. Kushing, director, utilities division, Michigan Public Service Commission, Lansing, and W. T. King, consultant, Lansing.

Commission Regulations

DURING HIS discussion of "Commission Regulation," Mr. Cushing stated that public utility regulation involves the exercise of legislative, administrative and judicial functions; the legislative determines the objectives of regulatory policy—the administrative interprets such objectives as stated in the statutes and indicates the manner in which the interpretations should be applied; and the judicial serves as a check upon the other two functions to the end that individual rights are preserved.

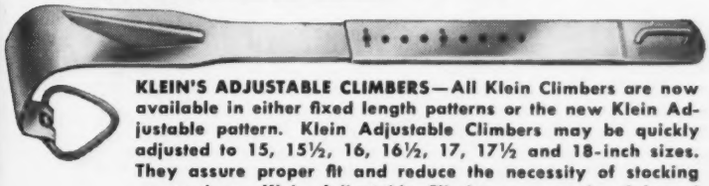
"Insofar as commission regulations are concerned," he said, "let us consider the administrative function. The nature of this activity and the impact upon a particular utility is dependent on policies and required

new additions to the KLEIN LINE

KLEIN TOOLS EST. 1857

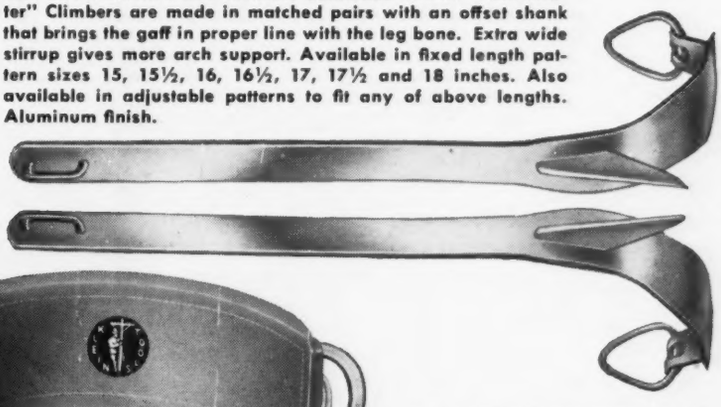
Since 1857

Mathias Klein & Sons continues to offer the electrical industry the most complete line of pliers and equipment on the market. Below are three additions to the Klein Line that have found favor with many utility companies. If you have not had complete information on this equipment, write for details.



KLEIN'S ADJUSTABLE CLIMBERS—All Klein Climbers are now available in either fixed length patterns or the new Klein Adjustable pattern. Klein Adjustable Climbers may be quickly adjusted to 15, 15½, 16, 16½, 17, 17½ and 18-inch sizes. They assure proper fit and reduce the necessity of stocking many sizes. Klein Adjustable Climbers are made of forged steel, individually tempered and tested. Aluminum finish.

No. 1945 KLEIN POLE MASTER CLIMBERS—Klein "Pole Master" Climbers are made in matched pairs with an offset shank that brings the gaff in proper line with the leg bone. Extra wide stirrup gives more arch support. Available in fixed length pattern sizes 15, 15½, 16, 16½, 17, 17½ and 18 inches. Also available in adjustable patterns to fit any of above lengths. Aluminum finish.



No. 5249 "KLEIN-LINE" TOOL BELT—This new belt is designed with a full-floating sliding trace of famous "Klein-Kord." Trace slides freely, allowing approximately 6 in. movement. Chafing is avoided, and undue wear on safety strap is prevented. Apron design permits visual inspection of trace throughout its entire length.

A soft, pliable latigo leather cushion 4¾ inches wide is pad-lined and edge rolled for comfort. The 2-inch wide belt shape is of heavy harness leather with a drop forged buckle. Made in following sizes: 36, 38, 40, 42, 44 and 46 inches.

Ask Your Supplier
Foreign Distributor: International Standard Electric Corp., New York

The New Klein Catalog giving full information on the complete Klein line will be sent on request.

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procedures of the commission. The impact is conditioned however, to some extent, by the effectiveness of the individual company's management policies."

Mr. Cushing commented that good regulation on the commission level is premised on specific policies which assure informed and correct administrative action to the end that; first, those affected will be satisfied that their interests have received fair and adequate consideration and second, that the results so obtained will encourage those regulated to support such policies and to cooperate in carrying them out.

"I want to point out only one significant factor," he said, "and that is that the basic principles of policy formation whether for administrative regulation of business or for the executive control in the management of that same business—are essentially the same in a democratic society. And those basic principles are promised upon the philosophy that in a social economic democracy the rights and welfare of all are recognized.

"Using this basic philosophy a chief executive of a business in formulating policy for guidance of other employees in determining proper course of action—might adopt the following general statements of policy in relation to the company's customers, employees, stockholders and governmental agencies:

"(1) Fair and equitable treatment to all customers.

"(2) Cooperation with the public including customers, and governmental bodies.

"(3) A sound and well defined attitude toward labor.

"(4) Recognition that the property of the company is dedicated to public service and represents investments and risks of stockholders and that this business should be required to and should render adequate service to all customers, protect the principal and produce a fair average profit.

"Now if a regulatory commission were to make a statement of its basic policy—I doubt very seriously if any deletion would be made or much more be added. . ."

Mr. Cushing emphasized that the principles under which regulation and management operate should be one and the same—"or in other words regulation is a part of your business—and the only point at which it becomes irksome to you is when the procedures required to determine whether you meet the basic policies which you would enunciate yourself—appear to be non essential—and you disagree with the adjudication of the facts.

"Now to prevent this irksomeness—the answer is to impose upon yourself insofar as possible 'self regulation.'

"Self regulation dedicated to progressive efficiency, economy and service in a manner that always management is reasonably free to make operating decisions without regulatory hampering—but always willing to cooperate with regulatory bodies for the advancement of public interest.

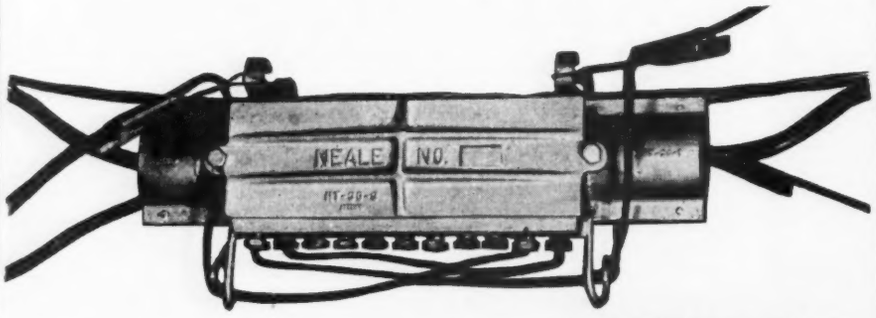
"Managerial policy which emphasizes good public relations promised on good quality of service at reasonable rates will require the minimum of governmental regulation and will be subject to the minimum number of complaints by customers."

Public Utility Regulations

HON. S. L. MARSHALL, commissioner, Michigan Public Service Commission, emphasized in his address that no regulatory commission or department of government creates anything of intrinsic value.

"The Michigan Public Service

Save 5 to 15 Man-Hours per Cut-in with the *NEW NT30 NEALE TERMINAL!*

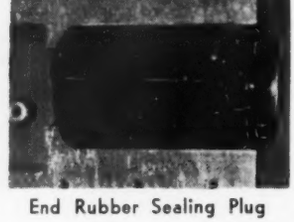


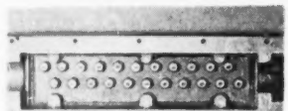
■ Yes . . . now you can cut down costly man-hours on cut-ins! Now you can save money on terminal replacement costs! The new NEALE NT30 TERMINAL makes it possible for one man—WORKING ON THE POLE ONLY 15 to 45 MINUTES—to make a complete cut-in! No wire cutting or splicing necessary. No joints to wipe . . . no seams to float.

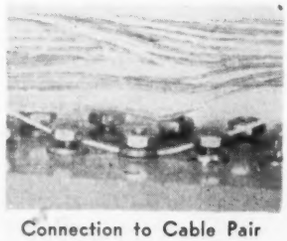
■ Move the NEALE NT30 to another location whenever desired. Forget about retailing or junking used terminals, because with the NEALE, you can use it over and over again.

■ Heavy pressure vulcanizes the long, heavy rubber sealing plug in the NEALE NT30 to the cable sheather and terminal shell. Terminal is then gas-pressure tight, moisture and insect proof . . . resistant to face plate leakage. Entire unit can be safely wired or gas-pressure tested.

■ For complete information on the new NEALE Terminal, contact your jobber, or write direct to:


End Rubber Sealing Plug


Face Plate


Connection to Cable Pair

CABLE SPINNING EQUIPMENT CO.
TOPEKA, KANSAS Phone 3-1829

Hon. S. L. Marshall, Commissioner, Michigan Public Service Commission, addresses Michigan convention.

Commission," he said, "never built a single rod of telephone line, never repaired a balky switchboard, never set a single telephone pole or installed a crossarm.

"Regulatory commissions are primarily concerned with two things: First, the quality of service you give the public; and, second, the amount you charge the public for that service. Of course, this last statement is an oversimplification of the work of the commission. In the over-all consideration of telephone problems as they exist in Michigan today certain fundamental facts must be recognized."

Mr. Marshall commented that it is the viewpoint of the members of the Michigan commission and the staff that so far as possible there should be a uniform standard of service existing in all exchanges throughout the state of Michigan.

"We recognize," he said, "that there is a wide variance in the density of population and the economy of various neighborhoods and a standard which would be entirely adequate in one community might fall far short of the demands of another more populace territory. Such a uniform standard as I have in mind involves the engineering and accounting brains available today only to the larger companies.

"I am convinced that it is possible and entirely practical that there could and should be established a Telephone Service Company designed to serve all small companies which find it economically impossible to provide themselves with such service on their own staff. It would seem to me that such an organization as I suggest should be headed by a competent executive telephone engineer with broad experience, and his staff should

(Please turn to page 73)

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Type 20 SUBSTATION PROTECTOR

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The Automatic Electric Type 20 Substation Protector provides complete protection against every type of danger potential. Its carbon-to-carbon discharge surfaces, very accurately spaced, provide full and permanent protection at all times. The one-piece heavy porcelain base assures ample spacing between terminals, and between discharge blocks and fuses and terminals. Geometric centering of discharge blocks provides greater mechanical strength and greatest effective dielectric strength. The removable hot-dip galvanized cover has ¾" clearance—a further safeguard against high potentials.

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Kellogg #600-602-610 Steel Ringer boxes, $3.50 each.
Kellogg #801 Steel, enclosed gong hotel sets, any type ringers, @ $8.00 each.
Prices F.O.B. Chicago

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Northern White and Western Red Cedar
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Jobs open at top wage scales with vacation and Holiday pay.

Also extra incentive pay plan.

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POSITION WANTED: Former Commercial Superintendent, Comptroller and General Manager (in that order) of a Class "A" company (foreign) desires executive position in domestic Independent telephone field. Age 48, married, two dependents. Available on reasonably short notice. Write Box No. 8695, c/o Telephone Engineer.

POSITION WANTED: Executive available, with mature judgment and habituated to detail, invites you to examine his qualifications. University graduate, experienced in telephone organization, management, rate procedure, accounting and labor relations. Box 8697, c/o Telephone Engineer Publishing Corp.

MANAGER WANTED: Man capable of assuming management of 275 station magneto exchange. Liberal salary. Write Raymond Telephone Co., P. O. Box 3, Raymond, California.

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HELP WANTED: Experienced Telephone installer, repairmen and cable splicers. Write Plant Supt., Durham Telephone Co., Durham, North Carolina.

WANTED TO BUY—Magneto or common battery exchange of approximately 200 stations. Near or west of Cascade Mountains in the state of Washington. Write to Rolland G. Ferguson, 617 South Oak Street, Tacoma, Washington.

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Bashlin's new bulletin giving full details on Linemen's Safety Equipment is ready for you . . . a complete line from which to choose, and every one a champion. Write today!

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FOR SALE: Telephone Exchange in central Indiana with over 600 subscribers. Plant is in excellent shape with new central office equipment and nice home included. Good rates. Asking price two times the gross. Write Box No. 8694 c/o Telephone Engineer.

FOR SALE: Two position #105 Stromberg-Carlson Magneto Switchboard 300 lines, 150 lines in each position, 15 cord circuits in each position, good condition. Write or call Red Jacket Telephone Company, Shortsville, N. Y.

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FOR SALE: 175-station magneto exchange with homes and lots, service truck, and large supply of material on hand. Located in rich farming country on U.S. highway. Recent rate increase granted; waiting list of potential subscribers. Address Box No. 877, Terrall, Oklahoma.

FOR SALE: 151-station magneto exchange; all metallic, lines in good shape; 11 miles of toll lines; 1946 Ford pick-up truck with telephone body, and a good supply of tools. In six-room house with hot water and bath, plenty of land. Address Twin City Telephone Company, Graymont, Georgia.

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10 lines
3 trunks
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FOR SALE: 500 used Stromberg-Carlson #1155 steel wall telephones @ $3.50 ea. 500 used Stromberg-Carlson #1156 steel wall telephones @ $2.50 ea. Frequencies: straight line, 16⅔, 33⅓, 50, 66⅔ cycles. Write Box No. 8699 c/o Telephone Engineer.

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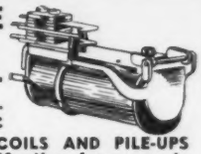

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7 WIRES (3 COPPER - 4 STEEL)
WEATHERPROOF INSULATION
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5 One Mile Reels . . . per reel $7.50
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100 One Mile Reels . . . per reel $6.00
250 One Mile Reels . . . per reel $5.50

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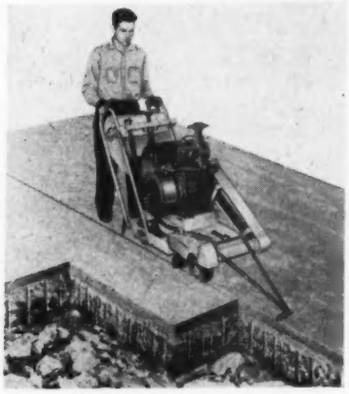
the New Products Showcase and Buyers' Directory



CONCRETE SAWS:—*Clipper Manufacturing Co., has announced three new Portable Concrete Saws. Users have proven that Concrete Sawing is completely practical and economical on the smallest patch job as well as on production sawing of contraction joints on streets and highways. The cutting speed is 12 feet per minute in asphalt, and up to 5 feet per minute—1 inch deep—in limestone concrete. The maximum depth of cuts is 6½".*

Outstanding features claimed are: Floating three point suspension which eliminates blade binding as saw is moved over rough surface, positive screw feed, streamlined design for ease of handling.

Many uses are described in illustrated literature now available, such as patching, sawing utility trenches, opening for setting new poles, scoring designs, cutting contraction joints.—Check New Product 274.

ACETYLENE EQUIPMENT — "Prest-O-Lite" No. 1 Lineman's outfit helps you do a better job, quicker & easier. The Linde Air Products Co., 30 E. 42nd St., New York 17, N. Y. —[ADV 1]

ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal., and 185 N. Wabash, Chicago, Ill.—[ADV. 2]

ANCHORS, Plastic Expanding, Universal. All Purpose—Mount in any Material, Holub Industries, Inc., 424 DeKalb Ave., Sycamore, Ill.—[ADV. 3]

ANCHORS & WIRE CONNECTORS—Matthews Scrulix Anchors, Matthews Telephone Wire Connectors. Write for bulletins. W. N. Matthews Corp., St. Louis 16, Mo.—[ADV. 4]

AUGER—The "Alaska Frost Auger." Free trial on your own machines. Henning Electric Motor Co., P. O. Box 786, Fargo, N. D.—[ADV. 5]

BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 6]

BATTERY—WATER UNITS Demineralizers for Tap Water—A. E. Tomkin & Co., 1828 Columbia Rd., N.W., Washington 9, D. C.—[ADV. 7]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.—[ADV. 8]

BLOCKS, AERIAL CABLE—"Tug-O-Wheel" aerial cable blocks for safe and speedy installation of all types of aerial cable. Tug-O-Wheel Products Co., Ballston Spa, N. Y.—[ADV. 9]

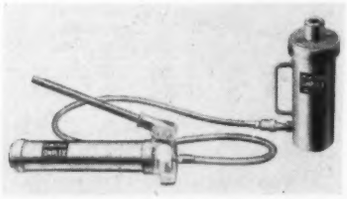
BOOTHS—Acoustic Telephone—Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn 6, N. Y.—[ADV. 10]

BOOTHS—Churchill Cabinet Co., 2119 Churchill St., Chicago 47, Ill.—[ADV. 11]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.—The Ansonia Electrical Co., Ansonia, Conn.—[ADV. 12]

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 13]

THREAD RESTORER: *A thread restorer suited especially for reconditioning closely spaced studs and bolts that are battered, distorted or rusted, is being produced by Buckingham Manufacturing Co., Inc. This latest product is added to a line of four other types of thread restorer tools, and completes a range of sizes which take care of all ASME and SAE standard threads from ¼" to 4" diameter.—Check New Product 275.*

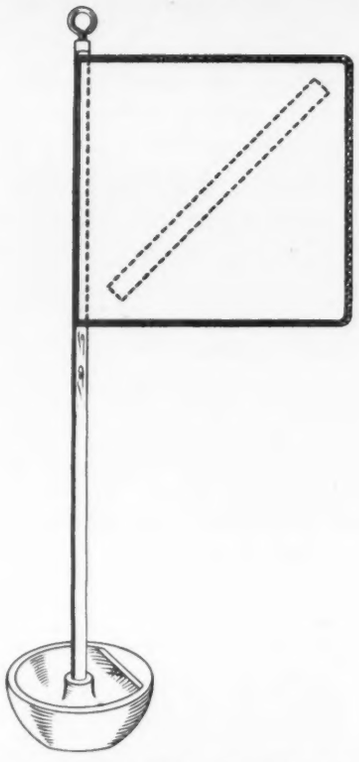


RAMS AND PUMPS:—*A complete new line of remote contral hydraulic rams and pumps has been announced by Templeton, Kenly & Co., manufactuers of Simplex Jacks. Named "RE-MO-TROL," the new units will be in addition to the full range of mechanical and hydraulic industrial jacks produced by Templeton, Kenly.*

The "RE-MO-TROL" units have been developed to operate where limited space or other difficulties make the use of self-contained jacks impossible. Light weight and easy portability increase the safety and efficiency of many jacking jobs.

The "RE-MO-TROL" enables the operator to lift, pull or push from a distance and in any direction — up, down, sideways or at an angle. One of its most unusual features is a "center hole" tubular ram.—Check New Product 276.

SAFETY TILTER:—*The new GS Safety tilter with pouring spout provides a safe, fast and convenient method of draining acids and other liquids from stainless steel barrels. The cradle and supporting base are made of structural steel. All members are riveted or welded to insure a strong, durable unit. The locking device permits the tilter to be positively held at any angle for pouring.—Check New Product 277.*



DANGER FLAG STANDARD:— ***Industrial Products Co. announces a new flag standard suitable for use in all types of industry where a low-cost, attractive, portable danger signal is desired.***

The unit is known as the "Ipco Wind-pruf Flag Standard" and consists of specially designed, 7" diameter cast iron base, 13" x 13" red canvas flag mounted on 32" staff, non-rusting eye and ferrule at top of staff.

Base may be used in position shown or inverted. Flag is held spread by means of a spring steel stay inserted diagonally in a canvas pocket. Eye at top of unit is used when making up barriers on streets, around manholes, for industrial repairs, etc.—Check New Product 278.

CARRIER EQUIPMENT—Adler Telephone & Telegraph Carrier Equipment has been standard for twenty years in the Independent Field. Mfd. only by Southern Electric & Transmission Co., 3127 Holmes St., Dallas, Texas.—[ADV. 14]

CONNECTORS, CABLE—Cannon Electric Development Co., 3209 Humboldt St., Los Angeles 31, Calif.—[ADV. 15]

CORDS, Instrument and Operators—Commermercial Cord & Supply Co., 26 Main St., Clifton Springs, N. Y.—[ADV. 16]

CORDS, Switchboard & Telephone—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 17]

CROSS ARMS—American Cross-Arm, Inc., 141 W. Jackson Boulevard, Chicago, Ill.—[ADV. 18]

DERRICKS—Set more poles with aluminum derricks. Aluminum Co. of America, 1407C Gulf Bldg., Pittsburgh 19, Pa.—[ADV. 19]

"EARTH BORING MACHINES" Sterling Model "A"—Precision Engineered and Hydraulic Controlled. Sterling Engineering & Mfg. Co., 173 Gilligan St., Wilkes-Barre, Pa.—[ADV. 20]

ELECTRIC HOT WATER HEATERS, Thermostatically controlled for any hot water heater, Vulcan Electric Co., Danvers 17, Mass.—[ADV. 21]

ENGINEERING, Construction—Neale Construction Company, 432 Crane St., Topeka, Kans.—[ADV. 22]

GENERATORS—A. C. power anywhere with "Katolight" plants and generators. Kato Engineering Co., 131 Maxfield Ave., Mankato, Minn.—[ADV. 23]

FURNACES—For quickly and economically melting lead and paraffin—Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.—[ADV. 24]

INSPECTION SERVICE—For poles, crossarms, and preservative treatments. Inspectors stationed throughout U.S.A. A. W. Williams Inspection Co., Mobile, Ala.—[ADV. 25]

INSULATORS, Porcelain—Porcelain Products, Inc., Box 300, Findlay, Ohio.—[ADV. 26]

JACKS, for lifting Cable Reels, Pulling Poles and Maintenance Work. Duff-Norton Mfg. Co., 1710 Preble Ave., Pittsburgh 12, Pa.—[ADV. 27]

PIPE PUSHERS—Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.—[ADV. 28]

PIPE PUSHERS—Greenlee Tool Co., 2186 12 St., Rockford, Ill.—[ADV. 29]

PINS & BRACKETS—Mfrs of all sizes of Locust Pins and Oak Brackets , The Locust Pin Co., Inc., Front Royal, Va.—[ADV. 30]

POLES—Cedar poles and Fir cross arms. R. G. Haley & Co., Inc., Spitzer Bldg., Toledo 4, Ohio.—[ADV. 31]

POLES, Southern Yellow Pine—Colfax Lumber & Creosoting Co., Inc., P.O. Box 23, Pineville, La.—[ADV. 32]

POLES, Creosoted Southern Yellow Pine and Douglas Fir. The Long-Bell Lumber Company, Wood Preserving Div., R. A. Long Bldg., Kansas City, Mo.—[ADV. 33]

POLES, Southern Yellow Pine—Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.—[ADV. 34]

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange, Texas.—[ADV. 35]

POLES—Texas Best pressure-creosoted poles. Lone Star Creosoting Co., P. O. Box 9, Longview, Texas.—[ADV. 36]

POLES—Western Red Cedar, Western Larch, Lodgepole Pine. B. J. Carney & Co., Minneapolis 3, Minn. and Spokane 8, Wash.—[ADV. 37]

POLES & CROSS ARMS—Creosoted poles and crossarms. Conroe Creosoting Co., Conroe, Texas.—[ADV. 38]

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—[ADV. 39]

GAS-TITE CABLE TERMINALS—Sub station protectors, main dist. frames; central office protectors; interior junction boxes; lightning arrestors.—Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.—[ADV. 40]

PRINTING—Telephone forms. Cullom & Ghertner Co., 600 21st Ave., Nashville 4, Tenn.—[ADV. 41]

REBUILT TELEPHONE EQUIPMENT—USED EQUIPMENT BOUGHT AND SOLD—Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.—[ADV. 42]

REBUILT TELEPHONE & SWITCHBOARDS—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—[ADV. 43]

SUPPLIES—New all metal heavy duty extension loud ringers; ready wire reels, payout only and payout and takeup in one.—Suttle Equipment Co., Lawrenceville, Ill.—[ADV. 44]

TELERING—Telephone ringing by frequency conversion. Voltage range for all purposes, central office and private branch exchanges. Telkor, Box 186, Elyria, Ohio.—[ADV. 45]

SWITCHBOARDS, TELEPHONES, ETC.—Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill.—[ADV. 46]

SWITCHBOARDS, TELEPHONES, Etc.—The North Electric Manufacturing Company, Galion, Ohio.—[ADV. 47]

WIRE DROP & INSIDE—Jackets of neoprene, rubber or plastic. Lowell Insulated Wire Co., Lowell, Mass.—[ADV. 48]

WIRE, Insulated—DATED DROP WIRE—Neoprene or Weatherproof—Alphaduct Wire & Cable Co., Milltown, N. J.—[ADV. 49]

WIRE, Insulated Drop and Bronze or Copperweld—Acorn Insulated Wire Co., Inc., 38 Freeman St., Pawtucket, R. I.—[ADV. 50]

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—[ADV. 51]

WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation—Paragon Electric Co., Two Rivers, Wisc.—[ADV. 52]

WIRE, TELEPHONE, for all inside and outside uses—Whitney Blake Company, New Haven, Conn.—[ADV. 53]

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NP 274..... NP 275..... NP 276..... NP 277..... NP 278

SERVICES AND SUPPLIES

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Company .....

Street Address .....

Town ..... Zone..... State.....

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Michigan

(*Continued from page 67*)

include at least one competent plant engineer, and expert traffic engineer and an accountant with a broad knowledge of the demands made upon telephone companies in their reports to regulatory Commissions and to other subdivisions of government. Further, as the scope and volume of the duties of such a service organization became known, adequate clerical help and perhaps additional engineering help would be demanded.

"In my thinking, such an organization should be realized through the support of every telephone company existing in the state. Even though several of the larger companies might have the abilities outlined above within their own staff, the services of such an organization should be supplied to the companies which need it most at a price they could afford to pay. Whatever the cost to the small companies and whatever contributions might be made by the larger companies, there could and should be a proper allowable expense deduction.

"Obviously, such an organization as I have roughly outlined should be an adjunct of this association. It would call for cooperation of every company in the state, and its services should be available to every company which needed it. Only by some such cooperative effort do I see any prospect of such standards of service becoming uniform.

"I think it is appropriate to say that such a service would be in the interest of the general public, and I am not excluding the 1,300,000 telephones in the Bell system nor the 130,000 telephones within the two large independent systems from such benefits. The ideal telephone service contemplates that any person located within any exchange may call any other person or station in any other exchange without undue difficulty or delay. . ."

Public Relations

W. C. PATTERSON, vice president of public relations and revenues, Michigan Bell Telephone Co., addressed the Michigan convention September 15. He emphasized that the telephone industry's public relations problem is not a problem

(*Please turn to page 74*)

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"each of us has alone, but one which all of us have together."

"There is a mutuality in our public relations," he said, "which dictates that each of us should be as interested in the public's appraisal of the other fellow's company as we are in the public's appraisal of our own company—because in the long pull the public doesn't weigh 152 separate companies in Michigan or 6,000 in the Nation. It weighs the telephone industry as a whole. . .

"Primarily, public relations is determined by the quality of telephone service we give—the way calls are handled, the way instruments are installed, the way bills are rendered, the way payments are received—in short, the way the business is operated.

"There's no one point in the telephone business where we can say, 'Here operations end, and here public relations begin.' We just can't have good public relations without good service. . ."

Mr. Patterson commented that the Independent telephone company owner has the opportunity to deal face-to-face with many of the subscribers.

"You get to know in a very exact way what they like about you and what they don't like," he said, "because they keep telling you to your face. You have every chance to make the most of each occasion.

"You personally have a rich opportunity—the opportunity to render really pleasing service, to have people know your prices are reasonable, to have them think of you as a good employer, to have your employees known as friendly individuals who, along with the company itself, are good citizens of the community.

"And that's the best public relations objective any business can have. You probably recognized it for what it is. It's not new and smart and streamlined, but old and wise as old men are wise. You've heard it before—at your mother's knee and from your pastor's lips. It's just the *Golden Rule—the Golden Rule* at work in business. Try to do for the other fellow what you would have him do for you if you were in the other's shoes. . . Really, that's all there is to a good, effective public relations policy.

The Michigan convention closed on Friday afternoon with a traffic session arranged by H. F. Emery, traffic superintendent, Michigan Associated Telephone Co., Muskegon; Fred Lictkeige, traffic superintendent, Union Telephone Co., Owosso, and Ken Garrow, division traffic supervisor, Michigan Bell Telephone Co.

Small Company

(*Continued from page 35*)

odd points around in the schedule, I can always say to myself, "Well, I'll let one of the office girls do that."

There are several little things that affect a schedule, and its workability. I have found that regardless of how good a schedule looks to me, the chief operator and the office manager can pick holes in it. So after I work one out, I give it to them to try to better, and most of the time they do better it.

We let our girls choose shifts each time we get out a new schedule, and the one with the longest service gets first choice of the shifts, and so on down the list to where the newest girl gets what is left. Some companies don't like this, but we do.

Do not schedule an operator for a day shift on the morning after she has finished a night shift. It is also best not to schedule an early shift for a girl following a shift that ended as late as 10:30 the night before.

As a general rule, try to keep the break between the two four-hour tricks as short as possible. At best you will still have some that will run as long as a four-hour break.

If you have two or three odd working hours scattered around over your schedule, slide the lines around until you have all the odd hours together —it is easier to work them when they are in one group than it is one now and one then.

Above all, spend all the time necessary to get the best possible schedule that can be developed. The better the schedule, the better the operators are going to like it, and the better they like their work, the better job they do. You'll never be able to please everyone, but it doesn't cost much to try.

R. N. Cole Advances To New Post

Announcement has been made of the election of R. N. Cole as executive vice president and general manager of Ohio Consolidated Telephone Co., Portsmouth. In his new capacity Mr. Cole is the executive in charge of all company operations in the state of Ohio, which activity covers 39 exchanges and rural communities spread over the southern half of the state and consisting of a total of ap-

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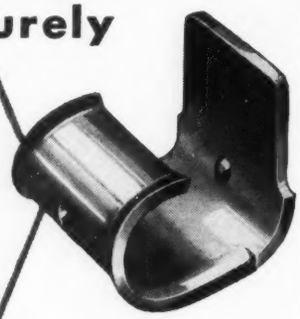

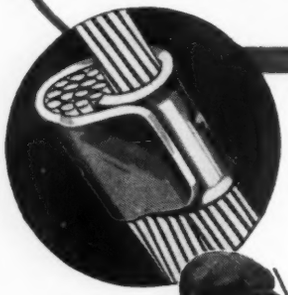

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proximately 45,000 stations. These 39 exchanges are divided into six major districts with a manager at each main point, namely, Portsmouth, Cadiz, Cambridge, Circleville, St. Marys, and Wilmington, with general management headquarter offices on the 8th floor of Masonic Building in Portsmouth where Mr. Cole and his staff direct the state-wide operation.

Phillip W. Conrad, president of the company, is out of the city on a leave of absence due to illness.

Mr. Cole has had a broad experience in many phases of telephone business. He started in the telephone

R. N. COLE

equipment manufacturing side of the business with Automatic Electric Co., Chicago, in sales and customer relations work. He then entered the operating field, accepting a position as manager of the Bloomington, Illinois exchange comparable in size to the Portsmouth district operation. Later he moved to Streator, Illinois, to accept the position of general superintendent of the Illinois Valley Telephone Company consisting of 15 exchanges located in the central part of Illinois.

Mr. Cole moved to Portsmouth in April, 1947, as general superintendent of the Ohio Consolidated Telephone Co.'s operations, at that time under the general management of A. S. Crane, president. In December, 1949, Mr. Cole was appointed general manager and in June, 1950, he became vice president and general manager.

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•

Represented in the U.S. by

ERICSSON TELEPHONE SALES Corporation

100 Park Avenue, New York 17, N.Y.

How gunpowder carried the news to New York

"THE Erie Canal's open!" rumbled the cannons' mouths in 1823. Hilltop to hilltop the news flew, from Buffalo to New York City, a three-day journey in those days.

Artillery pieces, placed high on the Hudson's ramparts and along the route of the infant waterway, carried the tidings. One hour and a half later, New York harbor went bedlam in salute. "The Erie's open!"

Today a vast network of wire and cable serves the world's communication needs. Hemingray Insulators play an important part in contributing to its efficiency. Over 80 years' experience helps make them the industry's standard.

Hemingray No. 56

This advertisement is one of the Hemingray series on the history of communication.

HEMINGRAY INSULATORS

American Structural Products Company

MUNCIE, INDIANA

Subsidiary of **Owens-Illinois Glass Company**

The Back of The Book

By JOHN G. REYNOLDS

Farmers Build A Line . . . Ranchers and farmers in Nebraska are becoming telephone linemen—and they like their new jobs for a good reason. They are bringing their rural areas modern telephone communication and it is all in the spirit of this country's pioneers. The farmers build and maintain their own lines.

Here's how one job at Gordon, Neb., soon to be completed, has been handled:

Close to five hundred miles of new pole and line construction was planned. This includes eight thousand poles, 1,500 miles of wire and 20 thousand glass insulators.

Tom Hall, Gordon, Neb., led the original discussion group representing 29 service companies in the Gordon area.

The farmers turned out with posthole diggers attached to tractors. Platforms built on other tractors and trucks enabled the inexperienced farmer-linemen to escape pole climbing. They could string the lines by standing on the platforms.

Assembly-line techniques were used. The farmers were divided into a dozen work crews.

Cost to the individual subscriber varied from one hundred dollars to $2,300.

• • •

"Miss Bell" Is Ace Trouble Shooter . . . A new service in helping dial subscribers is the work of "Miss Bell" of the Indiana Telephone Co. B. M. Webb, manager of the Jeffersonville, Ind. exchange has advised subscriber's that Miss Bell's calls to new telephone users are not the work of a practical jokester.

The feminine voice really means it when it says: "Good morning, this is 'Miss Bell' of the telephone company. Can we be of any help in your use of the dial telephone?"

"Miss Bell" or a Bell miss by some other name asks each new customer to dial her number, connecting with special telephone equipment which tests the experience of the dial user. It's all part of the company's program of helping its subscribers obtain good telephone service. . . .

• • •

Progress Report . . . In September we told you about Chas. Laflin and the Sorum Telephone Co., Bison, S. D. Here's Charlie's recent report to subscribers:

"We, of the Sorum Telephone Co., are very thankful and proud of the way everyone is helping us to get the funds necessary to quiet our west lines.

Since our last report, Marie Connery started the last drive by handing us a check for $25.00; Gene Rowbotham slipped us a dollar: Ralph Hamilton handed us two dollars. A report on dance tickets sold reads like this: Nels Aaker Store, $2.00; Pool Hall, $5.00; Smaller Place, $5.00; Red & White, $4.00; Bison Service Station. $3.00; Harry's Texaco, $4.00; Cottage Inn, $22.00. Lester Aaberg was in the office the other day and gave us a dollar. Lois West, south of the Slim Buttes, sent in $5.00 for tickets which she sold. There are still four books out, which we will report on later. We think that dance tickets will result in about $200.00.

Words of thanks mean so much but in all that the Legion boys and the orchestra have done to help us, thank you is feeble. so deep is our appreciation. When our west lines are quiet and the blizzards are upon us, we'll think of your kindly cooperation that has made it possible to talk again on a quiet line. . . ."

WHEREVER YOU USE WOOD..

IN THE SWAMPS, forces of decay are almost at their maximum of destructive power. High moisture content and infection from other decaying wood and debris are ever-present menaces. Poles properly treated with BARRETT* Coal-Tar Creosote have survived under swamp conditions for years.

IN THE SOUTH, prolonged high temperatures cause light-bodied preservatives to leach and evaporate from the wood, thus exposing the wood to termite attack and decay. BARRETT Coal-Tar Creosote, heavier bodied and of lower volatility, prevents this condition. It stays in the wood longer under all conditions—doesn't "run out" on the job.

IN THE DESERT, crossties broom, shatter and split from extreme dryness and heat. Solutions made with BARRETT Coal-Tar Creosote retard this, and also reduce mechanical wear of crossties through their lubricating action on the wood fibers. In poles, heavy treatment with BARRETT Coal-Tar Creosote substantially reduces checking and splitting.

IN THE NORTH, poles must resist the tremendous weight of frequent sleet storms. Avoid preservatives which *weaken* the wood. BARRETT Coal-Tar Creosote allows poles to retain their maximum strength, and helps to keep the poles at their best and hold the lines aloft.

IN FRESH WATER, many preservatives leach out of wood. BARRETT Coal-Tar Creosote resists this leaching action. Being only negligibly soluble in water, it is the preferred preservative for use on submerged wood structures, or those exposed to the powerful action of rapidly flowing water.

IN SALT WATER, marine wood-borers give a preservative its severest test. Of hundreds of preservatives that have been tried through the years, *Coal-Tar* Creosote is the only one that has proved consistently effective against teredos, limnoria and other salt-water enemies of wood.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

Use Barrett* →

*Reg. U. S. Pat. Off.

Only coal-tar creosote wood preservative has been used long enough and widely enough to have proved its effectiveness under all conditions.

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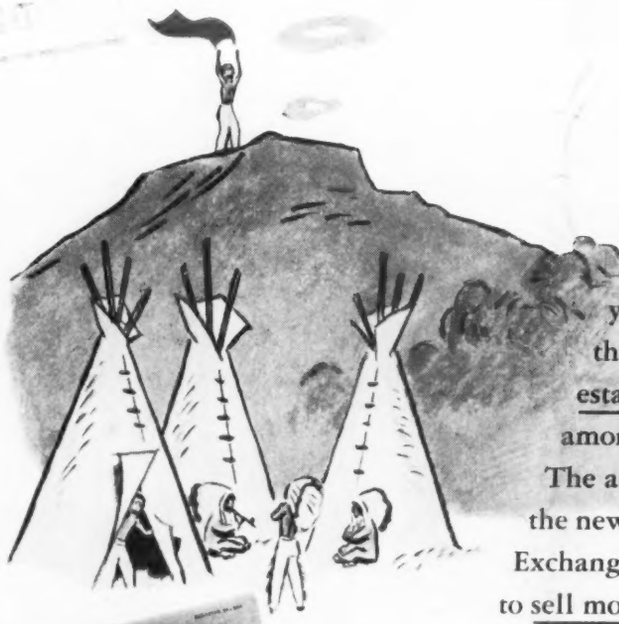
IT'S LATER THAN YOU THINK!

If your Switchboard requirements for 5 years to come are not filled, you'll be smart to ORDER NOW!

Any "Smoke Signallers" in your SUBSCRIBER LIST?



Any plant, store, office or institution without full inter-departmental telephone communication is almost as handicapped as though trying to talk with smoke signals. If there are such wigwam operations among your subscribers there is a grand opportunity there for you to increase your income per established line, while promoting satisfaction among subscribers.

The answer to such subscribers' problems is the new NORTH Private Automatic Branch Exchange. The way to increase your profit is to sell more P.A.B.X. We want to help you do it.

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WRITE FOR YOUR FREE SALES KIT TODAY

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THE NORTH ELECTRIC MANUFACTURING CO., Galion, Ohio, U. S. A.

Originators of **ALL RELAY** *Systems of Automatic Switching*